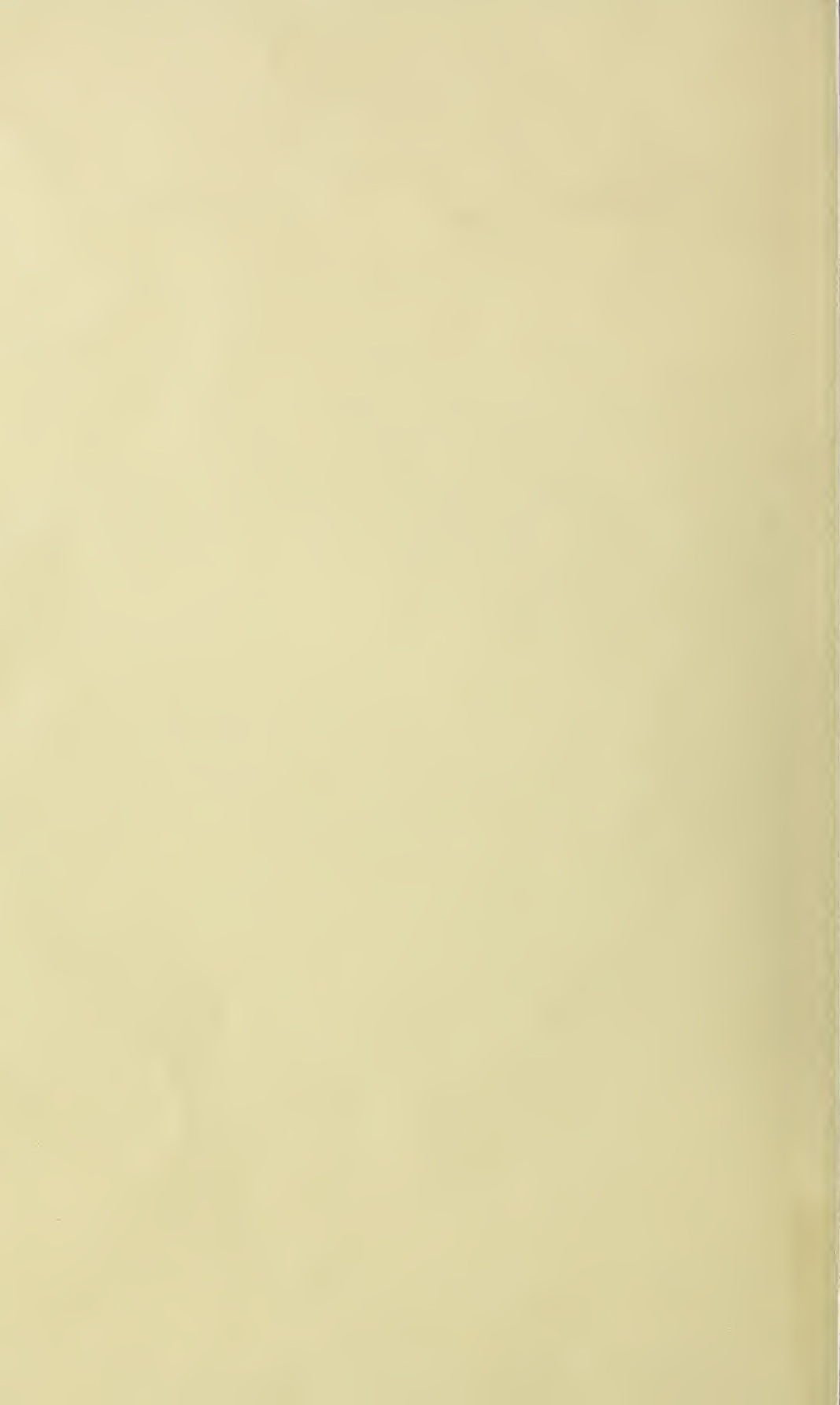


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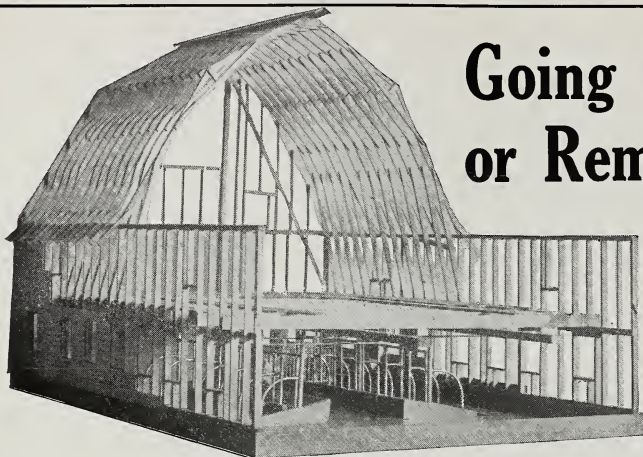
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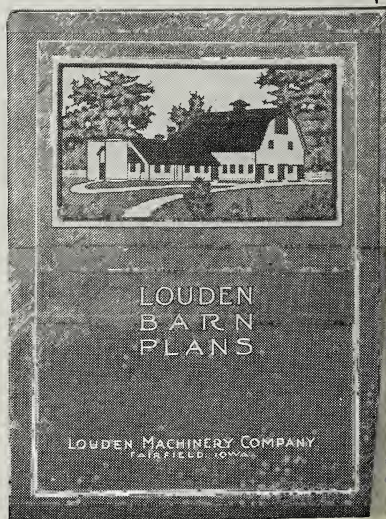
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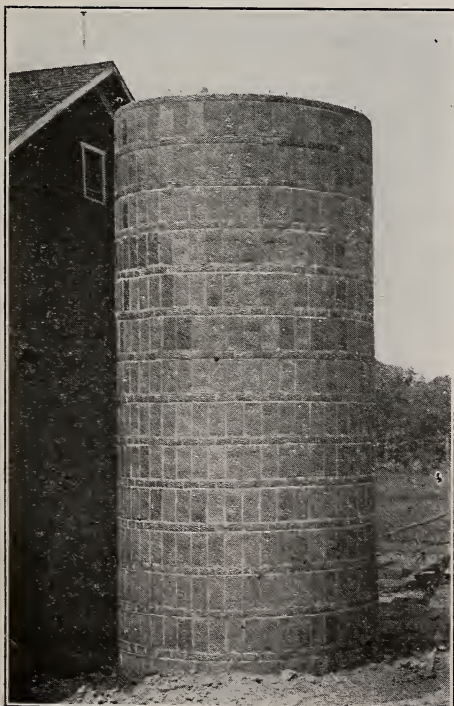
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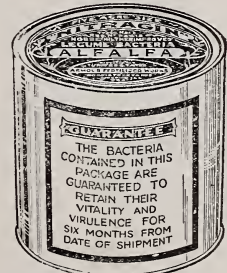
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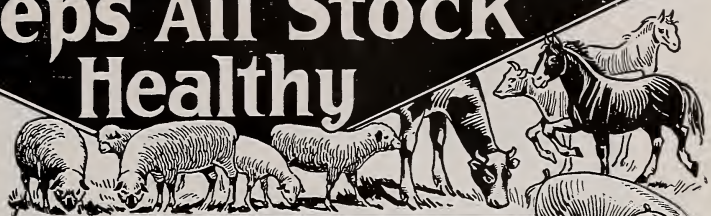
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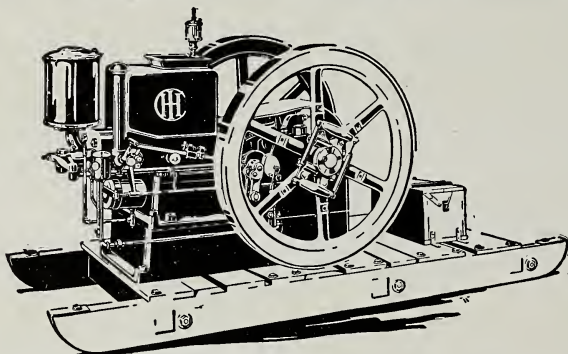
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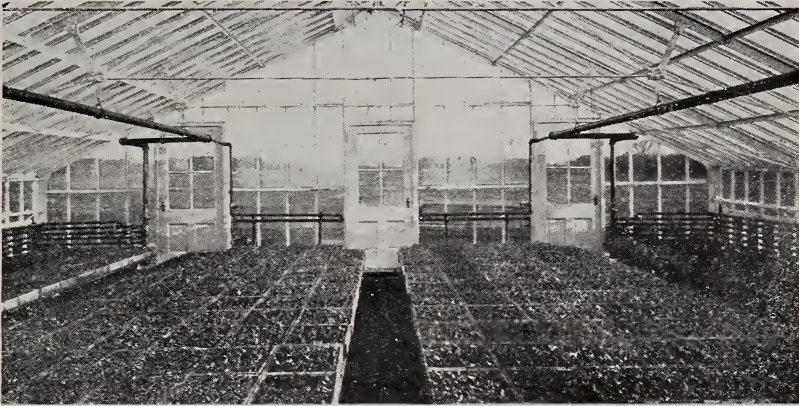
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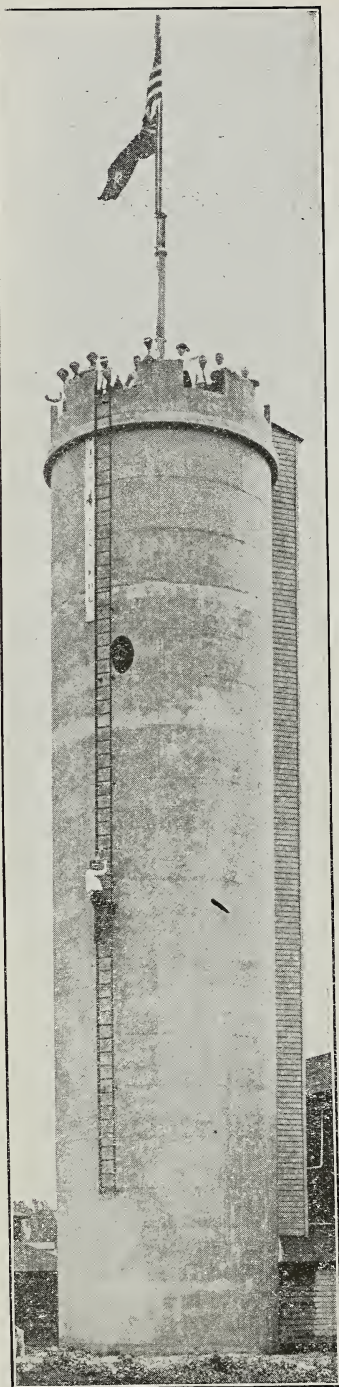
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Polk-Genung-Polk Company

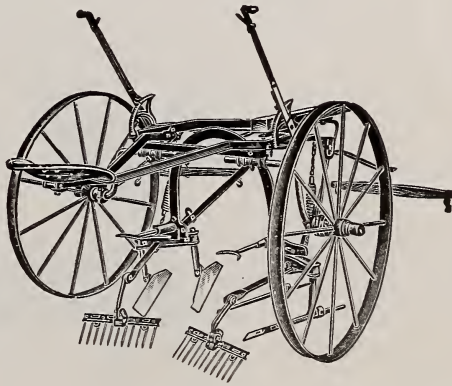
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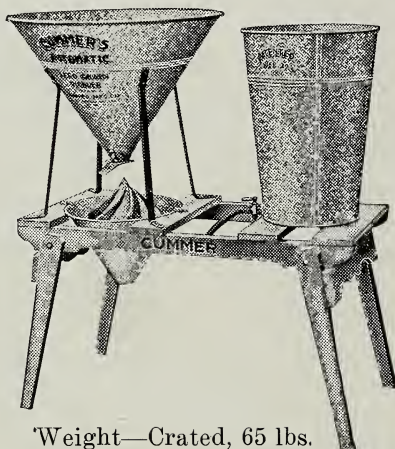
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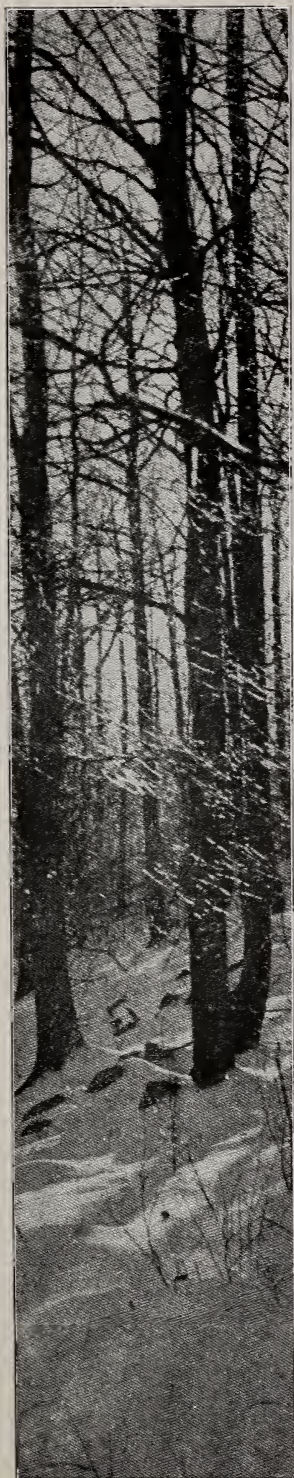
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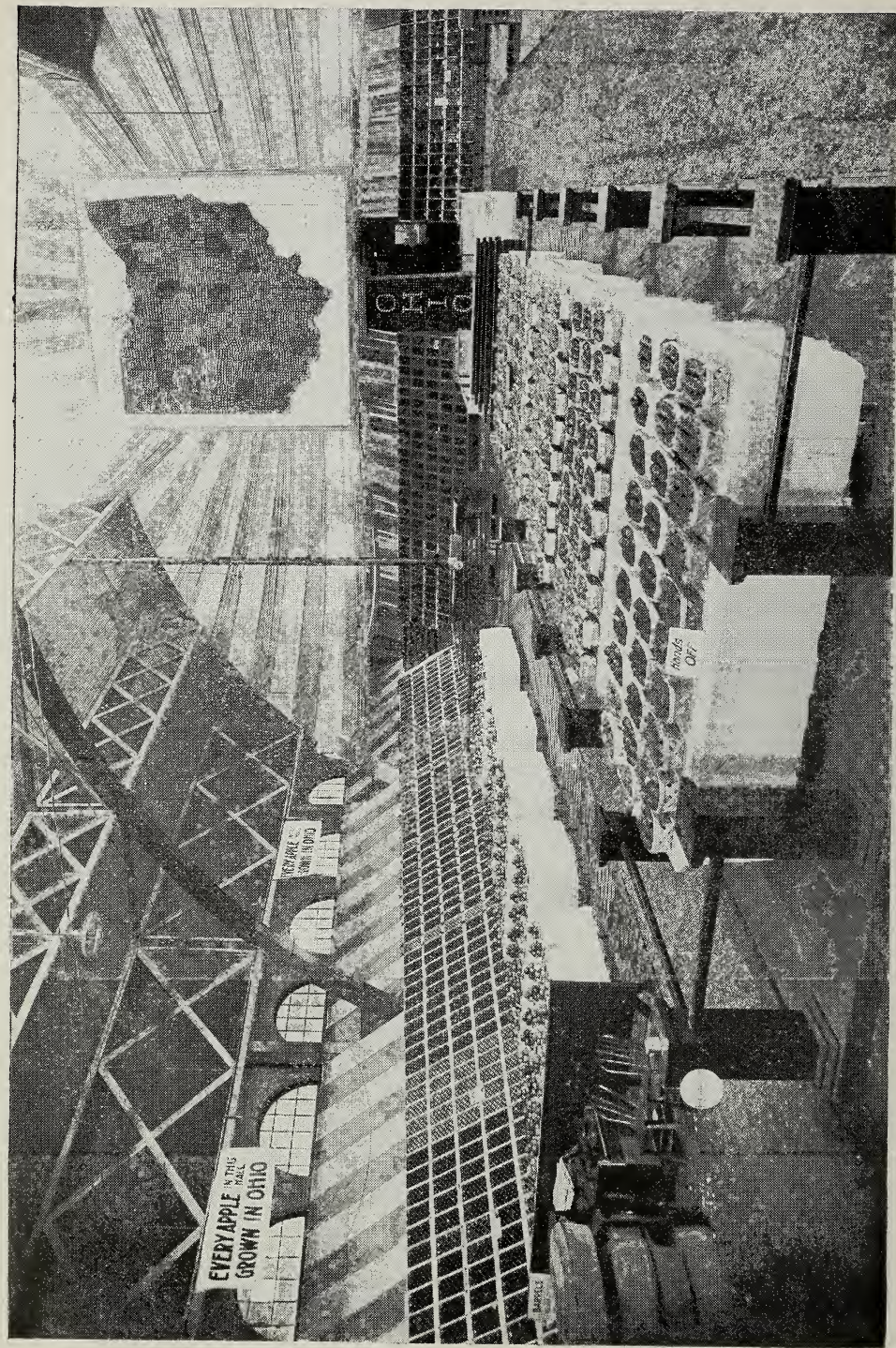
CUMMER MFG. CO., Cadillac, Michigan

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GENERAL VIEW OF OHIO'S BIGGEST APPLE SHOW—WINTER EXPOSITION, 1915.

—Courtesy "The National Stockman and Farmer."

THE AGRICULTURAL STUDENT

Vol. XXI.

OHIO STATE UNIVERSITY, COLUMBUS, FEBRUARY, 1915

No. 6

THE BUSINESS SIDE OF FARMING

G. F. WARREN

Professor of Farm Management, Cornell University

FOR long ages men have been studying the needs of plants and animals and have become more and more skillful in their production. For a generation scientific men have giving their best energies to the problems of plant and animal growth. These ages of experience and years of research have resulted in a large amount of useful information as to how to make plants grow and animals thrive.

But in recent years other problems have come up for solution. The farmer no longer stops with producing food and clothing enough for his own family. He produces and buys and sells. He must now apply business principles to his work if he is to be successful.

The ever changing prices of land, labor and crops make the application of economic principles a difficult matter. The principles themselves are not well understood, but even when the principles are known their application to changing conditions is not easy. Alfalfa hay has the same effect on a cow that it had a thousand years ago, but having the hay the problem of whether to sell it or feed it, if fed whether it should be to sheep or to cows, and if fed to cows whether the product should be market milk, butter or beef; are questions that involve the interplay of many economic laws.

Thus far most of the scientific teaching and investigation in agriculture have dealt with the biological aspects

of the problem. What is best for the plant or best for the animal has usually received the primary consideration, and all too frequently these have been the only consideration. All this work has been good. We can never know enough about the laws of nature. But for the practical farmer it is not sufficient.

While all this investigation has been going on to discover the laws of nature, farmers and some students have been devoting time to the laws of economics or laws of business. Many of the fundamental principles of the science of economics are now well known by farmers though not always expressed in the best form.

Unfortunately the specialist in crop or animal production has frequently, perhaps usually, been so absorbed in the study of the laws of nature that he has failed to grasp the equally important scientific laws that control business. As a result the specialist is constantly puzzled by the slowness with which the farmer has come to apply the recommendations that seem to him to be essential for success. He has failed to see the other set of forces involved. This error has now come to permeate the vast majority of the newspapers and magazines. Many persons consider farmers to be stupid or stubborn because they do not adopt methods that appear to have been amply demonstrated as best for the crop or animal, when a very little knowledge of the

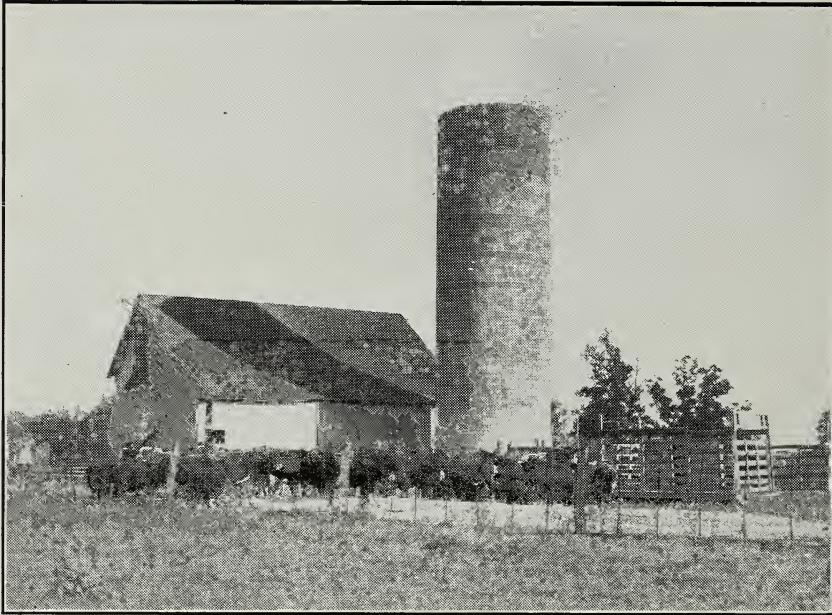
tempering effects of the laws of business would show that the farmer was right.

The time has now come when we must recognize that recommendations for farming can never be scientific until the science of business as well as the science of nature is recognized.

It never pays a farmer who produces for the wholesale market to farm in the manner that is best for the crop or

easy it is to feed a cow so as to make the milk too costly. An extra pound of butter on an advanced registry record may be worth \$100. The problem in such a case is all biological, but when butter is produced to sell on the market the problem of how much butter it will pay to have the cow give is ten times more difficult than the problem of what is best for the cow.

The colleges can never do anything



THE FARM PRESENTS THE GREATEST PROBLEMS OF ANY INDUSTRY.

animal. Only when he is to get some prize does it pay to do what has been shown to be best from that standpoint.

For a long time the farmer has been told that he should feed his yearling steers so as to keep them sleek at all times. But the farmer has persisted in roughing his beef stock over winter. Now it has been shown in Missouri, Kansas and Alabama that this pays better than to do what is best for the animal.

Wisconsin bulletin 116 shows how

to help in solving this problem until they cease to call the difference between the value of the feed and the value of the milk profit. The other costs have been shown by Minnesota, New York, Connecticut, New Hampshire to be from one-third to over half of the total cost of keeping a cow. Conclusions that are based on a deduction of only part of the cost must inevitably result in favoring a larger amount of feed than is shown to pay best when all cost items are included, hence, the col-

lege and the farmer often disagree, because the college man is really not scientific.

Perhaps on no question does farm practice differ more from bulletin conclusions than in the use of fertilizers. Here again an utter disregard of the principles of economics has been the cause. One cost factor only has been counted, i. e. the cost of the fertilizer. As in all such problems the law of diminishing returns holds, but when only one cost factor is counted the point of maximum returns is shown to be much greater than when all cost factors are included. Hence the recommendations of colleges favor a more intensive method than would be shown to be best if a scientific study of the results were made. No recommendations for farm practice in the use of fertilizers that do not consider the laws of economics have any right to masquerade under the name of science. The effect of fertilizers on the crop may be properly interpreted, regardless of the science of business but recommending what it will pay a farmer to do is an entirely different problem. With a timothy crop in New York, as a result of five years of cost accounts the writer has found that on one farm the original cost of the fertilizer was less than half of the total cost due to the use of fertilizer. By the usual method of figuring used by colleges a profit of 100 per cent might be shown when the whole truth would show a loss. Is it any wonder that farmers often consider the college recommendations to be too intensive?

It is easy to show that piling on more manure will give a better crop, but to make it pay is another problem.

On a good soil in Pennsylvania an average for twenty-five years showed that six tons of manure applied every

two years gave increased crops worth \$2.16 for each ton of manure applied. Ten tons of course gave better average yields but the four extra tons were worth only 25 cents per ton. This would not pay for hauling out the manure and for harvesting the increased crop. With this good soil and with the crops grown, a farmer who had enough manure to apply ten tons every two years would be justified in allowing the manure to rot away in the barnyard before hauling, for he would have left all that it would pay him to haul. A farm that is as heavily stocked as these conditions would require could not assign a very high value to manure. Unless the animals paid very well without counting the manure it would pay to keep fewer of them. Or a still better way might be to buy more land but not increase the stock and thereby have a chance to spread the manure thin enough to make it pay.

It is probable that the average farmer produces crops at very close to the minimum cost per bushel. Because prices are raising he is justified in using a little more intensive methods even though the cost per bushel is higher. It is very easy by intensive methods to obtain such good crops that they will not pay. As stated by Dr. Davenport in Illinois circular 177, "the object must be a **moderate increase in yields by economic methods** and not extreme yields which are bound to result in loss to the farmer or in prohibitive prices for food, or both."

The time has come when the specialist on crop or animal production must stop with the statement of the laws of nature, without recommending changes in farm practice, or else he must also give consideration to the science of business.

FARMERS' CLUBS

C. H. SWAN, Apple Creek, Ohio

IN all lines of business and industry excepting agriculture there has been a steady tendency towards unification. The manufacturing industries have united their efforts and managements under nation wide trusts with the purpose of regulating production, reducing operating expenses and eliminating competition in sales. Agriculture is the only large occupation of men left wholly at the mercy of speculators.

In Wayne County, near Apple Creek, the people felt the need of a farmers' organization. They saw that better social conditions were needed, and that the only way to better these conditions was to become organized. With this thought in view the Bantersville Farmers' Clubs were started. Neighbors with their families met twice a month at the school house. Men learned to talk and think while standing on their feet and exchanged ideas as to methods of raising crops. The young people were trained to learn and deliver recitations, and the ladies discussed methods of raising chickens, baking bread and improving home conditions. In short, talents were discovered and developed. Jealousy which is too prevalent among farmers, and is the stumbling block to successful farmers' organizations, gradually disappeared. People found themselves enjoying life; taking interest in the community's social welfare, interested in each other and glad they were living.

The primary object of this club was to improve the social life, but later the members took up the buying of necessary farm supplies. Since Wayne county is a large producer of wheat, and uses large quantities of commercial fertilizer, this was the first commodity

taken up for consideration. The saving the first year by cooperative buying was 50c per ton. The next year it was \$1.00 per ton. Up to date they have been able to save their members nearly \$5.00 per ton. All goods are bought for cash and members are required to pay cash on receipt of goods. If the clubs had done nothing else other than to instill in the minds of the people the advantages of paying cash they would have done a great work. With the assurance that the members will pay for goods at the car the club was able to ask the companies for a cash proposition. Sugar which is used in every household was bought by the ton. Now it is purchased by the carload. Soon other communities saw the need of similar clubs. The Anderson Club was the next to be launched, followed by others in rapid succession. Today there are sixteen farmers' clubs about Apple Creek. These different clubs are all united under one head known as the Farmers' Clubs' Co-operative Board. The purpose of this consolidation was to get volume of business as well as to strengthen the position of each club. No one organization could use a car load of binder twine or sugar, but by uniting they were able to take advantage of the car lot rates on the goods as well as reduced freight rates.

If the farmers of this great country ever get together and use the same business methods in marketing their produce that our large corporations use, they can then say what their article is worth. It can never be accomplished in any other way, and the sooner the farmer sees and understands this the better it will be for him and his posterity.

STATE FARMING

CHAS. E. McINTIRE
Ohio Board of Administration

ONE duty of the Ohio Board of Administration is to provide food for 23,550 human beings. There are but two ways of securing this food. It is either produced on the institution farms or is purchased on the market.

The three principal reasons for operating the farms are as follows: (1) a better quality of farm products can be produced than can be purchased; (2) patients and inmates are benefited by

In the production of field crops the maintenance of the fertility of the soil is duly considered. A large acreage of field crops is required and systematic rotations are followed wherever practicable. Short rotations are preferable owing to the fact that they do more to maintain fertility and provide crops best adapted to institutions' use.

From the large dairy and swine herds and other farm animals, a great quanti-



DAIRY BUILDING AT ATHENS STATE HOSPITAL.

and greatly enjoy the outdoor life connected with the production of all kinds of farm crops; (3) with much cheap labor, farm crops can be produced for less than market price.

Owing to the big demand for truck and garden crops of all kinds, this feature of farm work is given considerable attention, patient labor being especially suited to this line of work. Large truck fields and gardens are being provided at all institutions and great quantities of garden crops of all kinds are being produced.

ty of manure is produced. This material is properly cared for and as a rule applied directly to the land. Chemical fertilizers are also used wherever required. Winter cover crops, such as rye, vetch, etc., have proven very helpful in the maintenance and improvement of the land. The maintenance and improvement of the land is considered of greatest importance in the production of all farm crops.

Among the field crops, corn, which is grown for the silo as well as for the crib is of greatest value. The acreage

of alfalfa is being rapidly increased and, now that a grinder is in operation at the state quarry which provides an abundant supply of carbonate of lime, this valuable crop will be extensively grown at all institutions maintaining dairy herds.

Nine large dairies are now maintained and four others will be installed in the near future. Seven pure-bred herds have been established and a lim-

ber of females will be secured from each sire. The cows will be given official records and, when the herd is once established, the surplus animals will be shipped to a central point and sold at auction.

Several choice young bulls are being leased to breeders on the community breeding plan which has been followed in Europe and which has done much to improve the live stock in that country.



SWINE AND DAIRY HERDS AT THE DAYTON STATE HOSPITAL.

ited number of choice animals have been purchased for a foundation. These animals will be given the best of care and all female descendants retained for breeding purposes. All records are kept and the breeding directed by the Agricultural Department of the Ohio Board of Administration.

The best of herd bulls are used and transferred from one institution to another when the heifers are old enough to breed. By this policy, a large num-

The lessee agrees to retain the better heifers and the Board of Administration agrees to furnish another bull when the heifers are ready to breed. If this policy is followed for a few generations the result will be a decided improvement in the dairy cattle of the state.

Large herds of hogs are maintained which are fed mainly on the by-products from the institutions. With the addition of a little corn and middlings, cheap pork is being produced.

THE COST OF AGRICULTURAL TRADITIONS

W. F. COPELAND

Professor of Agriculture, Ohio University

WHERE progress is normal theory precedes practice, and progress is safe and assured if theories are sane and practices good. Some theories are ideas, notions, and sayings, that, on account of age, have become standards in agricultural operations. Many of these are harmless, interesting bits of folk-

tions," but the son is just as likely to apologize for his father by saying, "That is just some of dad's old notions." These are old, old sayings—traditional arguments. One is no more convincing than the other.

"That was good enough for your father and mother, and it is good



HOLSTEINS AT THE DAYTON STATE HOSPITAL.

lore; others have been more or less expensive. A few of each kind are given in these notes. It is not the purpose to argue that ideas should be discarded just because they are old; nor to advocate ideas just because they are new. A better aim would be to suggest a clearing-house for both the old and the new.

An old man is likely to say, "That is some of my son's new-fangled no-

enough for you" is another familiar family relic. This is too often a parent's comment when children offer suggestions for farm improvement or ask for a modern home convenience. It is an unfair, unfortunate reply—the kind of sentiment that destroys the harmony of the home.

In all sections of the country, land owners are being advised to plant trees. In some localities this is a good

commercial proposition. Everywhere farm prices can be greatly increased by careful selection and planting of trees for their aesthetic value. Advice of this nature often receives these threadbare replies. "I've got to have more ground for corn;" "Why should I plant trees, they won't do **me** any good?" "You can't eat decorations."

At a farmers' institute all of these stock arguments were given by one man. They were his defense. In the same discussion he acknowledged that he owned fifty acres of steep hillsides cleared fifty years ago, that had never paid for the labor of clearing. It must have been imaginary corn ground and imaginary corn rather than a crop of valuable timber that were providing home comforts for his last days.

No doubt thousands of acres of timber land unfit for any other farm crop, have been destroyed because of this attitude against the woods. The great American forest was a serious problem to the early settler, but his necessity has become a costly tradition to future generations.

Every phase of farm activity has paid an immense tax as a tribute to custom and habit. Below are examples from poultry lore.

When I was recently in the office of a lumber company making inquiry regarding the prices of different grades of lumber and ways of building small chicken coops, a middle-aged farmer volunteered to say: "Now, it is none of my business, but I have had twenty years' experience with hens and know all about the chicken business. You won't get any eggs from November until April; it don't make any difference what you do for the old hens." The lumber dealer inquired, "Well, John, where do you keep your chickens?" John's reply was typical:

"We've always let them roost in the apple trees, but it would be all the same anywhere."

I decided to test this theory and made two small coops. In one, five Rhode Island reds were placed and in the other five White Wyandotes. Five of each kind were allowed to be out in all kinds of winter weather. All were fed the same feed and at the same time of day.

The experiment was conducted during January and February with the result that more than three times as many eggs were produced from the hens in the warm coops than from those on the outside. One test of this sort is not conclusive, but it suggests that millions and millions of dollars may be the price of this apple-tree philosophy when applied to the production of eggs.

"It is natural for hens to have free range" is old enough, but it doesn't establish a fact. Why not add, "It isn't natural for hens to lay in mid-winter." Both statements may be true, but the farmer wants eggs during the winter to realize high prices. It may be "natural for chicks to be reared in fields and woods," but so is it natural for their enemies. The chicken business is improved only when these theories are true to fact. Our care must consider their natures, but animals and plants are not domesticated so much for their nature as for our purpose. When the two do not agree, man changes their nature but not his purpose.

"Our cat never kills birds" can be heard in cities, country, and town. It has been estimated that the average cat kills fifty birds a year. Mr. Forbush gives a photograph of one that killed fifty-eight in one year. A few years ago one of my students had an

old family cat that "had never killed a bird because it had been trained." At the close of the year we reached this agreement: The student was to go home and select, near the house, a bird's nest in the process of construction and to send back certain information regarding the nesting and feeding habits of this particular pair of birds. These answers were to be forwarded the day the young birds left the nest. I agreed to stop fighting the cat the day the letter was received. The letter never came, but the student did. She told the class in nature study that seven different nests were selected, and that her old tom cat destroyed them all.

The work of Miss Ernestine Cooley, which has been published elsewhere, justifies this statement: Ohio birds destroy eighty car loads of insects and weed seeds every day during the year. Similar observations have been recorded for other states and justify the conclusion that birds are necessary to permanent agriculture, while the common house cat does more harm than good.

But some traditions are too expensive to be measured in dollars and cents. A friend tells me this story from his boyhood experience: "When a boy, there were just two things I wanted for pets—one was a toad and the other was a snake. Every time I made this known, my mother replied, 'John, there are two things you can't have—one is a toad and the other is a snake'. When a little older, I said, 'Mother, why can't I have a toad?' Mother replied, 'If you handle a toad, you'll have warts; and if you kill a toad, our cows will give bloody milk.' I had it from my mother and I knew that it was true, but now I wanted to know how many warts a toad would make, and I wanted to see bloody milk.

"So, one day I captured a toad and played with it during the day and that evening took it to the pasture field. I killed my pet and then hurried back with the cows. After the milking I made a confession. That night in my little attic bed it occurred to me that perhaps I hadn't altogether killed that toad. The next day I killed another, and likewise for several days. It then occurred to me that there was something wrong, and that was the first time I found it necessary to place a question mark after any word or bit of advice from my mother."

This is too expensive for Mother and a bit of sad memory for her boy. If objects of nature were accepted for the good they do, the common toad would be much admired. Perhaps then we should see his wonderful eyes and there would be less comment regarding his ugly, warty hide.

Our community encyclopedias have a broad view of all things: religion, education, politics, and morals. Other members of their families are allowed to take a broad view of life.

The old doctrine that "there are better opportunities elsewhere" has been disastrous to many boys and girls. On one occasion I met a boy of eighteen on his way to Florida and a young man and woman going from a fruit farm in southeastern Ohio to a corn farm in Texas. On the return train I met a farmer and family returning from a North Dakota corn farm to a West Virginia fruit farm.

This is a common observation regardless of the teaching that opportunity depends largely on the individual. The gold in Florida, Texas, North Dakota, and West Virginia is gathered by the same intelligent application of brain and brawn as that in any other locality.

MARL DEPOSITS IN GREENE COUNTY

W. M. COOK

County Agricultural Agent

IT is generally expected that the county agricultural agent will bring some valuable ideas to his people of which none of them are familiar. This idea has even caused some of the farmers to discredit the entire work. Five years of agricultural investigational work among the farmers of Ohio leads the writer to conclude that there is possible wisdom on the part of farmers in not accepting and applying ideas

tendency toward discrediting the advanced idea which would not be accepted upon theory. No one is in better position to observe this fact than the county agent who works repeatedly with the same farmers. In short the work of the county agent is not so much that of trying to impart new ideas to his territory and to impress the farmers with what he may know, but to carefully investigate what the



ALFALFA FIELD NEAR YELLOW SPRINGS.

First Cutting Over Three Tons per Acre.

which have never been practiced locally.

There are few, if any, of the advanced teachings of agriculture which apply to conditions in Greene County, or Ohio, which have not been tried out by one or more farmers under practical conditions. It may be necessary to make a most diligent search in order to locate the example desired and possibly the nearby neighbors are not aware of it, yet in most cases it can be found.

Such an example used locally has no

farmer has already applied and intelligently interpret such results in order to spread them among the largest possible number of persons.

In attempting to assist some of the farmers of Greene County in solving the problem of lime supply for certain soils seemingly requiring it, it was learned that advance had been made with which only a very few of the farmers were familiar. With few exceptions the lime used was in the form of ground limestone which was prepared at some distant point. This pro-

duct with freight added was costing several dollars per ton when placed upon the soil.

One day a farmer brought a small sack of finely pulverized material to our office requesting that an investigation be made of its value as a filler for fertilizers as he had about ten acres which were covered to a depth of three feet with this material. A sample was sent to the Experiment Station chemist for analysis and it was found to contain over 98% of calcium carbonate. Careful examination was made of the deposit and it was found in practical form for immediate distribution upon the soil where needed.

A local investigation was made to learn if possible what results this "marl" would have upon farm crops when applied to the soil. It was impossible to find any one who had used this material in an agricultural way. The investigation was extended to the opposite part of the county where a remarkable example was observed. From a near by deposit the owner had hauled twenty-five tons of this mate-

rial per acre to his field where alfalfa had refused to grow and last year probably the heaviest yielding alfalfa in the county was grown upon the field so treated.

It has been an easy undertaking to interest the farmers in using this form of lime. The owner of one deposit is making plans for screening and pulverizing the marl on an extensive scale. Cheap water power is available for this purpose and the enterprise gives promise of being profitable.

The farmers have paid one dollar per ton for this material when they went to the pit and loaded it upon their own wagons. It can be loaded in a limited way without any preparation. However, there are large hard cakes mixed through the finer material which would make it necessary to regrind it with a light grinder.

When the need of lime has been more definitely determined in Green County, which at present indicates an extensive shortage, this local supply will unquestionably prove the cheapest source of supply.

February Immortals

WASHINGTON.

Where slips the Potomac's silvery tide
Toward the seas so far away,
Beneath the banner of his pride
Reposes Washington today;—
The chieftain of that little band
Which severed foul Oppression's chain,
And wrenched from out the tyrant's hand
The sword he durst not wield again.

He slumbers, by mankind ador'd,
First in their hearts forevermore,
The years add brightness to the sword
He sheathed upon Potomac's shore;
Behold the laurels on his brow!
Yorktown and Trenton—deathless names;
And Valley Forge is dearer now
Since all the world his bravery claims.

Thus from the wilderness of war
He led the way to fields of peace,
And placed in Glory's crown a star
Whose spreading light will never cease;
So long as Time strikes off the years,
And nations come and nations go,
Love will bedew with sacred tears
That grave above the river's flow.

Long may Potomac guard the One who slumbers where it Southward sweeps!
Long may the gentle Sangamon sing where the cherished Lincoln sleeps!
One in the East, one in the West, and both in freemen's hearts enshrined;
The rose that blooms upon each breast is watered by all human kind.

— Anon.

LINCOLN.

In after years another came—
From out the grand and mighty West—
To set upon the brow of Fame
A newer, an immortal crest.—
To strike from off the toiling hand
The galling chains of servitude,
And bid the oppressed millions stand
Erect without a fear imbued.

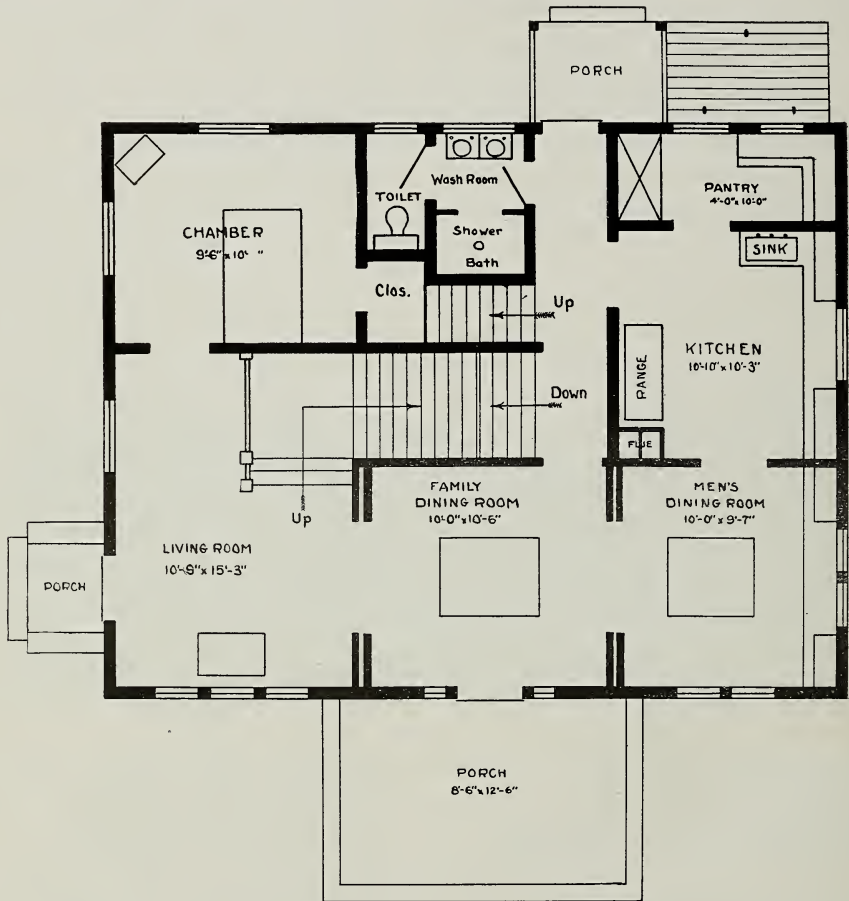
What kindly heart that beat for all,
He lived his life, and at its close
Saw vanish hatred's darkened pall,
And in the whole world had no foes;
How patient and how brave was he,
When fell disaster's chastening rod;
How often did he bend the knee,
And let his troubles out to God.

Great Lincoln! loved by every race,
In every heart thou hast a throne,
Thy rugged, trouble-haunted face
No more is by affliction sown;
The flag by Washington unfurled
Amid the fire and smoke of war,
With honor floats around the world,
Thru thee, without a missing star.

THE MODERN OHIO FARM HOUSE

R. E. CROUCH, '15

THE general problem of designing a farm house cannot be solved unless the whole farmstead and the surrounding topographical features are considered; the farm house is a part of an essential of successful agriculture as is efficient farming, and where the farmer feels that a well arranged group of farm buildings is a requisite for efficient operation, his wife is en-



FIRST FLOOR PLAN

the general farm scheme and everything should unite to produce a workable system of lands, barns and dwellings, so that permanent economy may result. A well arranged farmstead is a great essential in successful farming.

Efficient housekeeping is just as great

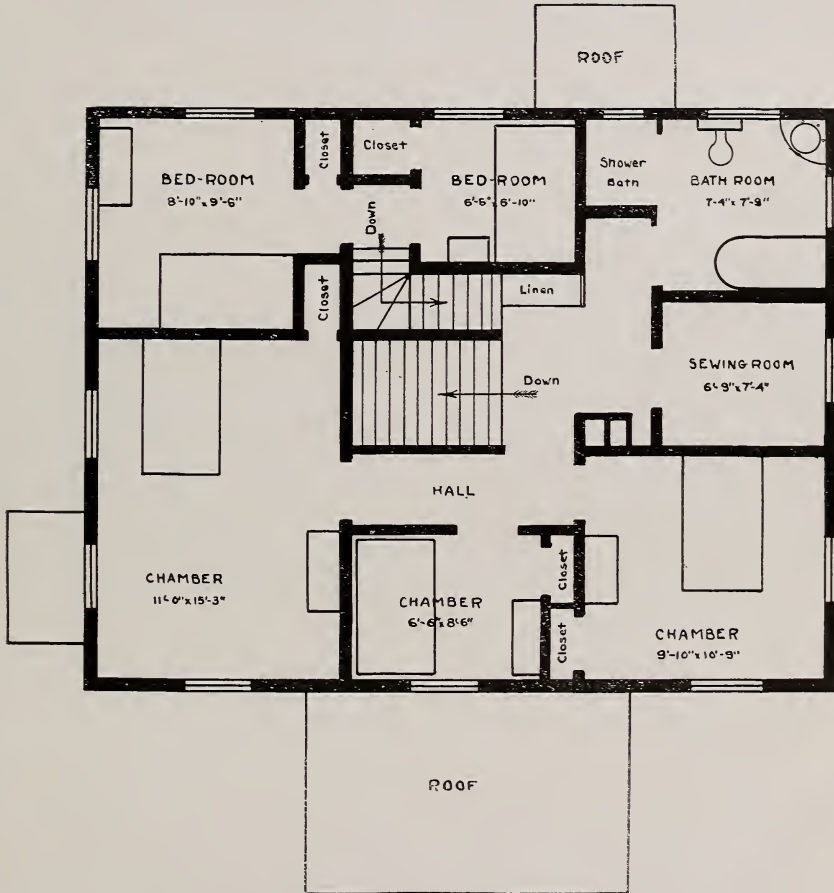
titled to have a workshop equally efficient.

The farm house is the wife's workshop and especially is this true of the kitchen for it is in the kitchen and dining room that the wife spends two-thirds of her working time. There is

a praise worthy tendency among the designers of modern farm houses to reduce the size of the kitchen. The evolution in farm life has done away with many of the uses to which the kitchen of olden times was put. The best design for the kitchen is one which is approximately square, having a floor area

hood over the stove for the carrying away of odors and excess heat in summer.

The dining room should be large enough to permit the placing of a good sized table, with sufficient room back of the chairs to allow the easy passage that is required in serving meals. This



SECOND FLOOR PLAN

of about 150 square feet, and with no two objects, such as the range, table, sink, etc., further than twelve feet apart. This will save much unnecessary walking back and forth. It is best to arrange the kitchen with built-in cupboards, to provide a sink, a convenient location for the range, and a

means that ten feet is absolutely the minimum dimension and about twelve feet would be even better. A lightweight, movable table, mounted on large, smooth-running castors, will save many steps in the serving of meals. The husband has a feed-cart for feeding the stock in the barn: so why can't

the wife have a tea-cart to use in transporting food-laden dishes from the kitchen to the dining room and the empty dishes back again to the kitchen?

The living room should have a southern exposure if possible. Plenty of light, both natural and artificial should be provided. Built-in book cases and window seats add marvelously to the comfortable appearance of the room, as do also wall paneling and beam ceilings. A fireplace is almost essential and will give the finishing, home-like touch to the room. Every city man, who considers going to the country, promises himself and family that they will have a large open fireplace. The family hearth is the true center of social life. It always has been and always will be so.

The bed rooms should have at least one outside wall and each should have at least eight square feet of glass. The windows and doors should be so arranged as to give a cross-draft. The rooms may be as small as 10'x10', but 12'x14' is preferable. All sleeping rooms should be provided with closets. At least four bedrooms should be provided in the average farm house, the exact number depending upon the size of the family and number of men hired.

A bath room is more of a necessity in a farm house than it is in a city house. No modern farm house is without its system of water supply under pressure, and this renders the installation of the bathroom fixtures a comparatively simple matter. Where possible, two bathrooms should be provided, one for the members of the family and one for the employees. The one for the employees should be on the first floor or in the basement so as to

be readily accessible, that the men may wash and change clothes after coming from the stables. Shower baths are so inexpensive and simple to erect that it has always been a wonder why farmers do not realize their great advantages and install them in their homes.

It is often highly desirable to provide two stairways so that the bed rooms for the hired help are entirely separated from the rooms of the farmer's family. This second stairway should give access to the hired men's bathroom and also to an outside door without going through the family living rooms. The men will feel more free to come and go from the house.

A very good idea is to provide a separate living room for the hired men. It should be comfortable and commodious as well as congenial and will result in the men spending their evenings here rather than in the adjacent country town. They will use this living room for social quarters and, if books and magazines on farming are provided, it will be quite an aid in the creating of greater interest in better farming.

A summary of the desirable features in the design of a farm house would include the following: (1) simple and substantial appearance; (2) durable construction; (3) rectangular plan; (4) broad low roof with few breaks; (5) large porches; (6) good light and provision for ventilation; (7) provision for farm help; (8) ample storage room for the winter's supply of fruit and vegetables; (9) a well-planned kitchen; (10) good systems of heating, lighting and water supply, also a system of sewage disposal, in most cases a septic tank system.

HOW ONE BOY ON THE FARM SAW LIGHT

C. M. BAKER, '16

GEORGE BRANSON was working aimlessly about the barn one afternoon early in December; in fact he was hunting for something to do for he could not allow himself to be idle. Even the sport of hunting had grown old this fall. He longed for something that would show results and accomplishment. He was trying to busy himself at a small gasoline engine when his mother opened the barn door.

"I want you to go to Westville and deliver the butter and eggs to Mrs. Smith this afternoon," she said.

"All right, I'll do it," said George. "I want to get new batteries for the engine. The old ones are worn out."

In a few minutes George appeared at the back porch with his driving horse hitched to a light wagon ready to receive the butter and eggs.

"Be sure to bring me a dozen cans for some of the fruit in the cellar is spoiling and must be preserved," said Mrs. Branson.

"I'll not forget," said George as he drove away, "for I must go to the hardware store to get the batteries"

The weather was rather cold and George kept the horse moving at a good speed. Nothing seemed attractive to him, for the field had all been cleared and presented a bleak, bare appearance. Naturally with nothing to occupy his attention he began to think. He was now twenty years old and had with the help of his mother managed the farm since his father's death four years ago. This year he had done all the farm work without the aid of a hired hand. For some reason, however, the farm did not yield the crops it had under his father's management. It was losing in fertility, the yields of

clover were poorer and the livestock did not thrive as well as formerly. All these facts were on his mind. Surely he ought to do as well as his father did. How was he to solve the problem and where was he to begin? This was the question that now commanded his attention.

Before he realized it he was in the town and his horse from force of habit had turned the corner and was headed toward Mrs. Smith's residence. After delivering the produce and taking next week's order he drove down to the hardware store to get the cans and batteries. The usual number of loafers were in the store but George paid little attention to them, purchased his articles and went out. As he stepped out of the door he noticed a large banner, stretched from the store to the town hall, bearing the words:

AGRICULTURAL EXTENSION
SCHOOL HERE NEXT WEEK

He stopped for a moment without understanding what it meant. Then he went across to the town hall and asked for information. Here he obtained several descriptive pamphlets relative to the extension school at Westville. They interested him very much and he spent all the time on the road home in scanning the booklets. He had heard of such schools, and in fact he remembered his father speaking of them frequently.

"There's going to be an agricultural extension school at Westville next week," said George that evening at the supper table.

"So I see by today's paper," said Mrs. Branson. "I wish that you would go to hear some of the lectures."

"I think I shall try to hear a few

of them at least. I have a programme which I will look over tonight."

George spent the entire evening reading the booklets noting the subjects of the lectures, the sketches of the speakers, and the demonstration features. He still kept thinking about the farm. Would the extension school help him solve some of the difficulties? He decided he would at least give it a trial.

that thorough cultivation was necessary; that the failure of clover usually indicated acid soil and that lime corrected acidity; and that legumes, such as clover and alfalfa, were very valuable in returning lost fertility. Surely some of these facts could be applied to the old farm, he reasoned as he drove home.

Tuesday morning found George at the extension school again—taking



"HE WAS ESPECIALLY INTERESTED IN ANIMAL HUSBANDRY AND DAIRYING."

The first lecture was on Monday afternoon; the first person to occupy a seat on the front row was George Branson. With note book in hand he was ready to take the first word. "Essentials of Soil Fertility" was the subject; the personality of the speaker, the confidence with which he spoke and the use of familiar farm terms impressed George very much. He learned a number of lessons from this lecture; namely, that drainage was an important factor in growing the best crops;

more notes. Every lecture had some truth in store for him and he was determined to get it. He was especially interested in field crops feeding methods, animal husbandry and dairying; and in these he secured all the information he could. At the end of the week George had a veritable library of facts which he valued most highly. He regretted to see the instructors leave and only wished that he might have another week like that one.

After several days of study and med-

itation he came to some definite conclusions. Things seemed more clear and he began to realize how great the opportunities on the old farm were and, furthermore, now he knew where and how to begin. The winter was rather open, permitting farm work to proceed with little difficulty or interruption. George spent every day remodeling the barn, opening tile drains or doing an occasional day's plowing as the weather permitted. He also entered into an agreement to help a neighbor boy build a lime kiln, taking burnt lime in payment for his labor. Several weeks were spent in the wood lot getting out logs for necessary repairs in the barn and for a new poultry house.

Here he conceived the idea of buying a silo by selling some of the best cherry and walnut lumber which could be gotten in the wood lot. A new poultry house was constructed early in the spring and an old feeding shed was used to hold the manure which could not be taken to the fields at this time. Every day presented some new features but by the time spring work came on George had made marked improvements along many lines. The land, which had been plowed in the winter had been limed, the lime being obtained from the partnership kiln, and was ready for the alfalfa seed as soon as the other crops were out of the way.

George worked very hard that season and by the first of September all the harvest had been put away, the corn had been laid by and the wheat plow-

ing finished. Now was the time to get at the silo; and, after two weeks of hard work a new stave silo stood at the corner of the barn. The corn was now ripe and the silo soon received nearly all the crop, only 200 shocks being left to husk by hand. The alfalfa had grown so large that George now took off a third crop. Everything had worked out fine and George was proud of the season's success.

By the middle of October all the farm work had been finished and George was beginning to think of the next extension school. One day he went to the mail-box and returned with one of the agricultural journals which he had been receiving regularly. "Listen to this, mother," said he. "This says, 'beginning October 19 the agricultural college will offer a three-year course in agriculture which lasts 5 months. This course is intended for boys who are living on the farm and find it impossible to attend the regular courses.' 'What do you think of that?'" "Would you like to take the course, George?" his mother asked.

George looked at the paper for a moment and then replied: "I can hire John Langdon to do the work this winter and I am going to Ohio State." The next Monday saw him bidding farewell to his friends at Westville station and soon he was traveling over miles of steel rails to the school where he knew he could learn the facts that would make the farm his father had tilled produce even greater crops than it had this year.

Agriculture is of all industries, the richest in facts, and the poorest in their comprehension. Facts are like grains of sand which are moved by the wind, but principles are the same grains cemented into rock.

A BROADER VISION OF RURAL SCHOOLS

C. M. SENN, '16

EVERYONE who is acquainted with rural conditions knows that the rural schools of our state are falling far short of what such an educational system might accomplish. Agriculture is the newest subject introduced into our rural school curriculum, but it is now taught in more than ninety per

cent of the rural schools by unprepared teachers with uninteresting and unsuccessful methods.

handling the subject of agriculture wherever it is presented? In the average rural school today the subject is taught from a text book by the teacher who, in many cases, knows nothing about the subject other than as the text presents it, or who has had no training in any agricultural school,



THE CENTRALIZED SCHOOL IS THE ONE GREAT MEANS FOR THE INTRODUCTION OF AGRICULTURE IN THE RURAL SCHOOLS.

cent of the rural schools by unprepared teachers with uninteresting and unsuccessful methods.

Any one expecting to fit himself to enter any technical work selects a school that uses a system of training in which practical as well as the theoretical side of the subject is presented. Why should we not expect the same from the rural school? Why should we not expect the same manner of

and thus is unable to present the science of his subject. Moreover, the present school system presents no laboratory. Hence, it is failing every day because it does not prove its teachings, and does not allow the pupils to prove for themselves what it teaches. One may say that opportunity is presented on the farm for experiment and for the laboratory. This is true, but how many farmers will let their sons try systems

of crop rotation? How many will allow their sons to run test plots to find results that come from the use of the different kinds of fertilizers? Answering these questions will prove that rural schools seldom get beyond the theoretical stage unless the teacher has opportunity to prove his theories in his own laboratory.

It is under these conditions that the subject is taught at the present time, but the burning rays of progress are slowly thawing away the ice of conventionalism and in a few places has resulted in greatly improved conditions. At present the new system is for the most part a vision but the vision is a good one, for in most instances it has been made real, and is proving a success.

The vision is this—to equip every rural school with a laboratory where the subject may be presented from both the practical and theoretical viewpoint. It is true that this will mean a passing of the present antiquated school system, but have we not been ready for it to pass years ago? It will mean the end of the subdistrict and the beginning of the large centralized unit. It will mean the location of this central school building on a farm that will be worked by the pupils of the school and supervised by the principal of the school who will be a man trained in the subject of scientific agriculture. Such a system will furnish opportunity for

the presentation of manual arts and domestic science and will be a factor in the community of which it might well be proud.

At present there is one man at least who has caught this vision and he now sees it becoming real. This man is Orlando F. Hart of Union City, Ind. He has always held an ideal far in the future; time after time he has reached this ideal and time after time he has set a new one. Through his continuous living in the future he has risen from the position of a country school teacher to that of district superintendent in Darke County, Ohio.

With his mind still toward the vision of better rural school conditions for Ohio he worked on this last vision until he has succeeded in getting one township of his district to vote a bond issue for centralizing its schools. This centralized school is to be located on a large farm which is to be operated by the boys and supervised by the principal of the school. The school building will be equipped with modern laboratories and will have a large auditorium where the farmers may meet and conduct their institutes and listen to lectures given by the superintendent of their school farm.

An ideal training school, with training for old and young will undoubtedly be the outcome of this work and thus more fully will the new era in agriculture be visualized.

The man who is strong to fight his fight,
 And whose will no force can daunt,
 While the truth is truth and the right is right,
 Is the man that the ages want.
 He may fail or fall in grim defeat,
 But he has not fled the strife,
 And the house of earth will smell more sweet
 For the perfume of his life.

—Anon.

MUCK SOILS

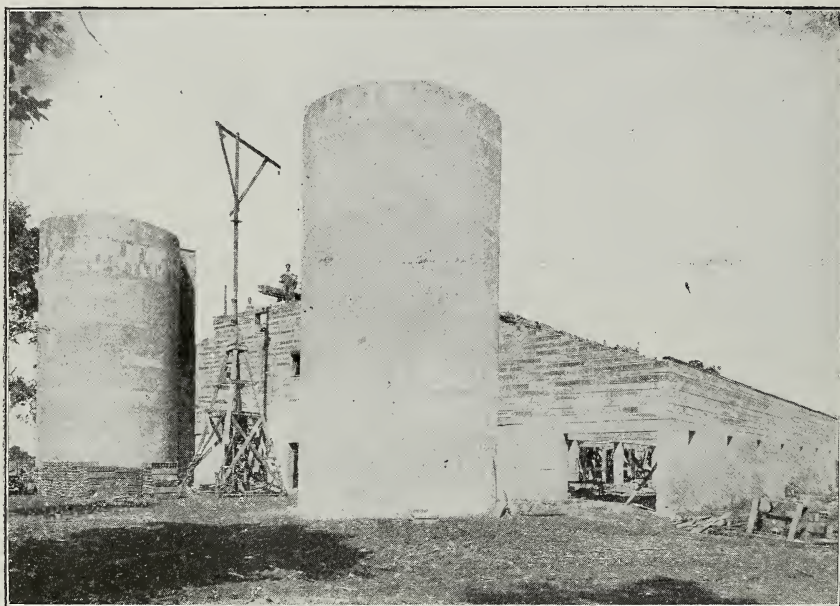
E. A. KING, '15

AREAS of distinctive muck and peat soils have been found in every state in the union. At the present time the reclaimable swamp areas in U. S. is approximately 75 million acres. In north western Ohio about 200,000 acres of this type of soil are found.

The term "muck" is applied to the accumulation of dead and partly decayed organic matter. Muck differs from peat

The first and most important step in bringing these swamp lands to a state of productiveness is that of drainage. The surface features of muck soils are almost universally those of a level plain. In general, the deposits have been formed within the areas of small lakes or ponds or along the courses of sluggish streams.

There are several stages of particu-



ERECTING PERMANENT SILOS AND BARN ON A FARM IN THE MUCK REGION.

in that it contains more mineral matter and is in a more advanced stage of disintegration.

The conditions which favor such accumulations are usually those of humid climate and abundant vegetation, resulting in partial preservation of successive deposits of vegetation. As a result of these necessary processes of formation, accumulations of both peat and muck are more frequent and more extensive in the northern latitudes than in the warmer southern latitudes.

lar importance in the drainage of this type of soil. Unless the drainage is deep and thorough grass will not grow. As one increases the drainage system, the muck becomes drier and an abundant growth of blue grass takes the place of the marsh plants. When this stage is reached the once swampy area is ready for cultivation.

Primarily muck soils are adapted to special farming rather than general farming. Even in the case of areas that have been drained and cleared, the

greatest part of the acreage is given over to the production of hay, corn and small grains, and only limited tracts have been occupied for more valuable special crops. The initial expense of draining and clearing such soils has been the chief objection to their development, but where there is a good market the high acreage value of these special crops warrants the outlay of large sums for reclaiming favorably situated areas. There are many instances where the cost of draining and clearing muck areas have been repaid within a few years by the sale of high priced crops like celery, lettuce, onions and cabbage.

In general farming the rotation that is generally used in connection with muck soil is corn, oats and timothy hay. Usually alsike clover and orchard grass are mixed with the timothy. On well drained muck soil a yield of 40 to 50 bushels of corn is not uncommon. Oats does best in the moist, cool muck soil and 50 to 80 bushels per acre have been grown. Probably the best grass crop is timothy and this yields one and one-half to two and one-half tons per acre. Potatoes yield from 150 to 350 bushels per acre. Alfalfa is grown some on this type of soil, and in all probability it will be extensively grown on well drained muck soils in the near future, provided lime is supplied. The above mentioned crops are most extensively grown upon reclaimed areas of muck, but most any crop can be grown.

The maintenance of the fertility of muck soils is much easier than any clay and sandy soils, due to the fact that muck soils are high in nitrogen and humus. Nitrogen is the most expensive element of the three elements needed in the soil and the hardest one to obtain because it is the one that is most

readily lost. The value of manure produced on the farm today is being appreciated more than ever before. It has been found that 80 per cent of the fertilizing value of food fed to animals can be returned to the soil. Therefore, with proper attention one should be able to keep up the fertility of muck soils without the use of added commercial fertilizers on a general farm.

The physical condition of muck soil differs from that of clay soil. When plowed wet in the spring they do not become lumpy but remain friable, and the plant roots can readily penetrate the soil. Another point worth consideration is that one does not need so much tillage as other soils to form a mulch for the conservation of moisture during the dry summer season. Muck soils form their own mulch to a large extent.

The value of ensilage as a feed is well recognized, and it is being used in communities where muck soil prevails. It solves a problem with respect to the maturing of corn crops in this region. Due to the low level of such lands frost comes much earlier than on higher land and corn will not, under ordinary conditions, ripen sufficiently to shock, but can be cut for ensilage much sooner.

At present there is not more than 10 per cent, at most, of the total area of muck and peat soils in the U. S. that is drained. It is therefore apparent that the reclamation of swamps and bogs is not only a national problem but also a state issue. We have in our state a large area of this highly productive soil which may be reclaimed and used for the production of a variety of crops. The time is now at hand when the demand for increased production justifies the utilization of these muck soils.

THE OHIO WINTER EXPOSITION

C. M. PAKER, '16

“**E**XCELLENT in every feature” voiced the sentiments of the thousands of people who attended the first Ohio Winter Exposition—the combined Ohio State Dairy, Apple, Corn and Poultry Shows—which was held at the Ohio State Fair Grounds, January 9-15. Using the Woman’s Building for the Dairy Show, the Horticultural Hall for the apple exhibit, the old Horticultural Building for the Poultry Show and the Administration Building for the Corn Show, an abundance of room and facilities were afforded which made possible a well-arranged and complete exhibit of all classes in each respective show. The Fourth Regiment band enlivened the exposition with music each afternoon and evening. All the buildings were connected by temporary hallways making the entire exposition easily accessible to all visitors.

The Apple Show.

Especially featured by a map of Ohio made from fifty bushels of green, yellow, and red apples, and ten exhibits in the hundred tray class, the apple show was the best in its history. In addition there were twelve entries in the 25-tray class, fourteen in the ten-tray class, six booth entries, twenty in the 5-box class, and numerous single-box and plate classes. The Brown Fruit Farm of Worthington, won first in the hundred-tray class, with a total score of 91½; M. H. Dyar of Lowell, second, with a score of 90, and H. C. Price of Newark, third, with a score of 87. In the booth exhibits The Brown Fruit Farm took first premium, F. H. Ballou of Newark, second, and U. T. Cox of Portsmouth, third. Competition was keen in every class and over \$2,000 was distributed in prizes. Numerous ex-

hibits of spraying outfits, both hand and power, apple grading machines, cider presses, nursery stock and other horticultural accessories were on hand to enlighten every one on the latest facilities for practical apple culture. Many of the apples in the exhibits were sold to visitors. The map of Ohio was sold to the wife of Mayor Karb of Columbus, who donated the apples to the associated charities of the city.

New officers elected by the Ohio State Horticultural Society at its closing session are: E. J. Riggs, Columbus, president; F. H. Ballou, Newark, secretary; E. A. Fleming, Lowell, vice-president; V. H. Davis, Columbus, member of executive committee.

On Friday afternoon, January 15, the department of horticulture of the university conducted a students’ judging contest in which Frank Copper won first place with a score of 95.33%, and D. L. Harkins, second, with a score of 94.38%. A silver cup constituted the first prize.

The Apple Show alone was worth a visit to the fair grounds. Owing to the demand for the home-grown apples and to the fact that every apple exhibited was grown in Ohio, the state bids fair to become one of the leading apple producers in the Union.

The Dairy Show.

All available space in the Woman’s Building was occupied by dairy supplies, ranging from the silo which furnishes the feed to the scales with which to weigh the butter, including cream separators, Babcock testers, engines, pasteurizers and creamery supplies. Special programs were held each day of the Exposition. These included those of the ice cream, creamery and

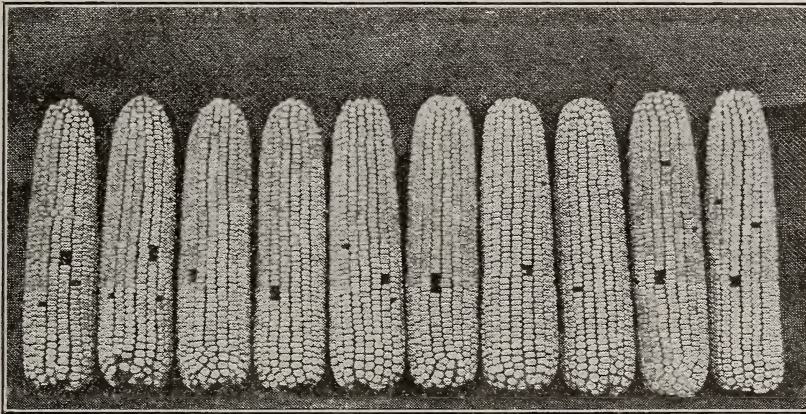
cattle protective associations and the state cattle clubs. J. D. Nichols of Cleveland, made a plea for cooperation between the farmers and the dairymen. Speaking of the foot and mouth disease, he said too much publicity had been given to the possibility of the disease being transmitted to human beings, while it is generally known that pasteurization would prevent this. Dr. V. A. Moore of Cornell University, spoke on Tuberculosis. W. A. Woodhull of Chicago, pointed out that a large part of the dairyman's product is taken by the ice cream manufactures

tion was formed, the first of its kind in this state. There are fifteen breeders in the state, nine of whom were present at the first meeting. Officers for this association are: John Sherwin, Cleveland, president; R. F. McKune, Hudson, vice-president, and D. M. Henderson, Hudson, secretary.

Prizes to the amount of \$650 were offered for dairy products and the classes were well filled.

The Corn Show.

Every one took unusual interest in the large amount of grain entered in the



GRAND CHAMPION TEN EARS AT THE OHIO STATE CORN SHOW.

Yellow Dent Shown by H. W. Bussert, Fayette County, Ohio.

—Courtesy "The National Stockman and Farmer."

at higher prices than they receive from other sources. Other speakers were W. W. Marple of Chicago, N. P. Hull of Dimondale, Michigan, and E. H. Baker of Cleveland.

In all the various meetings the necessity of cooperation in stamping out the foot and mouth disease was emphasized.

Governor Willis was the honor guest at the dairy banquet which was held on Wednesday evening, January 13. He uttered praises for the farmer and said he believed the farm to be the greatest place on earth to live.

An Ohio Ayrshire Breeders' Associa-

20 odd classes of the corn show. In view of this fact the Ohio Corn Improvement Association decided to adopt a new name so that its work would include improvement of all crops, and appointed a committee to draft a new constitution. They recommended that each county should have a farm on which to test crops in order to determine what cereals are best fitted to the soil and climatic conditions of the county. They also approved of a fixation of the standard grades for commercial corn, based on the moisture content, which were fixed recently by the office

of grain standardization of the United States Department of Agriculture.

An exhibit showing the effect of early and late planting of corn, large and small amounts of seed to the acre, the moisture content of corn and its variation during storage, yearly variety yields and other significant features, was made by the Ohio Agricultural Experiment Station. Charts of ear-to-row tests of corn were also shown.

H. W. Bussert, of Fayette county, was the winner of the sweepstakes in the 10-ear exhibit of yellow corn. Over \$700 was distributed in prizes and every one interested felt that the show was a success in spite of the lack of local interest. The management hopes to continue the corn show as a part of the exposition for next year.

The Poultry Show.

One thousand birds representing every breed of poultry together with numerous entries of ducks, geese, turkeys and pigeons formed the exhibit which filled the old Horticultural Hall. This clearly demonstrated that poultry husbandry is fast becoming one of the main sources of income on Ohio farms. Six hundred dollars were offered in prizes.

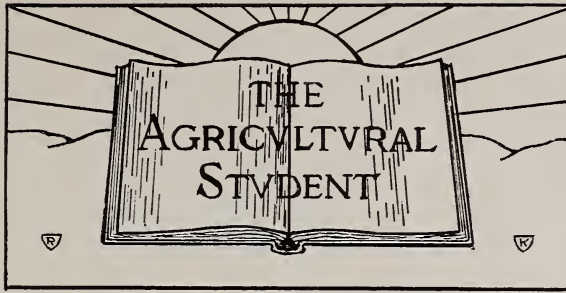
Members of the Ohio Poultry Association made a strong effort to have the Ohio Agricultural Commission establish a department of poultry. J. T. Heizer, president of the association is one of the strongest promoters of the movement.

"If the poultrymen get representation through a department of the Agricultural Commission, the business will double within one year," said Mr. Heizer in discussing the matter. "Chicken fanciers of Ohio realized over \$3,000,000 in eggs and poultry last

year and this could be easily doubled. A little encouragement by the state would aid this wonderfully," he declared.

The poultry department of Ohio State University gave daily demonstrations on the killing and dressing of poultry. Prof. Jacoby also had charge of the poultry exhibit which is shown at all the extension schools. Practical demonstrations of poultry-house construction, shipping of eggs by parcels post and grading of eggs were given. The entire feature attracted much attention.

Officials of all the organizations which composed the exposition were of the opinion that the success of this fair warrants the holding of another one next year, providing the cooperation of the state can be obtained. In view of this fact none of the associations have made plans for next year's show until this is determined. As an educational feature the farmers and members of the various associations represented at the exposition was of great value. Coming as it does during the winter when farmers can leave their homes for a short time without affecting farm work, it affords an opportunity for those who are unable to attend the state fair to get an idea or better agriculture. After the foot and mouth disease is under complete control, a live stock show might be added with good results. The buildings on the fair grounds are in use practically only one week in the year. Hence the advisability of securing as much on the investment as possible. Let us all hope that the Ohio Winter Exposition will become a permanent feature and that it will continue to grow until its greatest benefits are realized.



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COLUMBUS, OHIO, FEBRUARY, 1915.

EDITORIAL

With the great number of agricultural publications throughout the country practically every farmer is reached by one or more farm papers.

With this large amount of agricultural reading material already before him the average farmer does not deem it necessary to ask for any of the publications of the United States Department of Agriculture. However, much material is published in the form of Farmers' Bulletins that could and would be read with profit by the majority of farmers if a more efficient method of getting it before them could be employed.

With the Federal funds now available it is an impossibility to send all the

bulletins to each of the six million farmers. The circulation of the average Farmers' Bulletin rarely exceeds 85,000 copies and many of these are sent to city and suburban readers. Much material of practical value to the every-day farmer appears in professional bulletins. Most of these, of which there are commonly only 3,500 copies printed, must go to scientific co-operative agencies. Thus only a small percentage of the farmers can be reached by the official publications in the original form and it is evident that some other means of distribution of this valuable material is needed.

In this regard the Annual Report of the Secretary of Agriculture for 1914 contains the following statement:

"As the result of long observation,

as well as of careful survey, the department reached the conclusion that, aside from the conveying of information by competent persons directly to farmers on their farms, the most efficient medium for reaching the farmers was the agricultural press."

The various agricultural papers, by publishing reprints and digests of the practical material of the Federal publications, which will be of greatest value to their respective readers, will not only directly benefit their own subscribers; but will through their co-operation render a valuable public service by making the work of the United States Department of Agriculture more efficient.

¶ ¶ ¶ ¶

Perhaps never in the history of the world was there a greater need for strong men than at the present time. The world is in need of men of worth; not only men who know, but men who can do things. Of what value is knowledge without the ability to apply it?

Society demands that those who spend years in training and education should become active leaders in their respective fields of endeavor. It is the duty of every student to do all in his power to qualify for such leadership. The college course requires such training as will enable the student to become an analytical thinker; but little opportunity, however, is given for self expression, and less for acquiring a knowledge of human nature. Exclusive attention to the courses placed on the class card results in an unsymmetrical development of the individual. If men and women are to be thoroughly equipped for their life work they must supplement their book learning with the other factors essential to success.

Active work in one or more of the student organizations not only affords opportunity for self expression but gives the student an insight into human nature which could be obtained in no other way except in the rough and expensive field of experience. The human side of every proposition must be grasped before success can be attained in any field of endeavor. The student who begins his training along this line through experiences in the student activities will be farther on the road to success at graduation than he who has devoted all his time to the required course of study.

Another quality, essential to success, to be gained in the student activities is that of initiative. The required courses of study have a tendency to destroy this desirable quality since they give the student so little opportunity to go ahead and do a thing without first being told to do it. It becomes easy, through habit, to attend classes at a prescribed hour and perform certain prescribed duties, but it requires some effort to join a student organization and a greater effort to take an active part in the student activities. It is because of the above fact that student activities develop initiative.

American universities have been criticised by Europeans on the grounds that they are not thorough. In spite of this fact, European capitalists continue to employ American graduates in preference to graduates of their own institutions where little time is allowed for student activities. The capitalists see in the American graduates, the power to organize and direct, a power developed as a result of experience in the student organizations.

Unfortunately all students of American universities do not take advantage of their opportunities for development;

however, required work in the college activities would further rob the student of his initiative. It is a matter of choice with the student. It should be remembered that "man is not a slave to his environment" and that if he will take the initiative to make use of his opportunities, he may become "the creator of his own destiny."

¶ ¶ ¶ ¶

During the winter time when the ordinary farm activities are practically at a standstill so far **FARMERS' as necessary work is VACATIONS.** concerned, the farmer should take a vacation. This vacation need not be an extended one but it should be well planned with definite purposes in view. Instead of the usual idea of a vacation—that of taking a long trip and forgetting every present duty and obligation—the farmer should strive to make his vacation of such a nature that he will become informed of more improved methods of farming and better living. A trip to the Mid-Winter Exposition, to the Farmers' Week or some other agricultural activity of state or national fame will afford the best means of acquiring this information.

Educational features which these meetings present in the way of extending and teaching up-to-date, scientific agriculture will afford the best means for entertainment for any man who has been closely held to his farm for the year. Neither the money nor time expended can ever be regarded as wasted; on the contrary they will be well spent and will bring a greater return than is possible in any other manner. Often has the influence of these vacations led many a farmer to consider more thoroughly and completely the work on the farm for the following year and more often have many agri-

cultural problems been solved where otherwise they would remain a drawback to the farming operations. When such a vacation has been taken, the vacation for each succeeding year will be more enjoyable and will bring more and better benefits.

¶ ¶ ¶ ¶

A few years ago a farmer living in the northern part of this state purchased several bushels of extra good **A REAL BENEFACTOR.** seed wheat—enough to plant three acres.

The seed proved to be well adapted to the region and soil for it grew well, did not shell easily when harvested and yielded about 8 bushels more to the acre than the variety usually grown there. The next year this "progressive" farmer supplied many of his neighbors with seed wheat and charged only a few cents more than the market price per bushel. Thus the wheat yield of the whole community was increased with little effort on the part of many and good judgment on the part of one.

In like manner this same farmer introduced good types of pure-bred live stock into his neighborhood and made a business of furnishing sires of "market demand" type. In a few years' time the blood of this stock was evident in nearly every neighbor's farmyard. Such stock was more profitable to feed and had a greater demand on the market.

Such an incident reveals work of a real benefactor—that of improving some line of farm crops or livestock by quiet, unobserved, practical efforts. Likewise such a plan could be used for any line of rural betterment. The benefactor need not openly advocate his plans and purposes but simply carry them out in a modest, unpretentious manner. Others will soon follow prof-

itable features and both the benefactor and his neighbors will be benefited.

¶ ¶ ¶ ¶

Within the past few years the agricultural press has developed very rapidly until papers, **CHEAP** magazines and **JOURNALISM.** journals intended to represent and extend every line of farm specialty are to be had at a very nominal price. These papers have been the means of educating and enlightening many farmers on the various rural problems which present themselves from day to day. Although there are many desirable features we find many instances where our agricultural journals have fallen short of their duty. With the increased popularity of agriculture and its sidelines many have entered into the field of agricultural writing mainly for the compensation and publicity which it affords. Herein lies the chief cause of cheap journalism. Reporters who have followed the daily newspaper work can not use their same style of writing and do justice to the cause of agriculture and the farmer. Neither can the novice fulfill the mission of agricultural journalism by writing some incidental feature which has proven successful under especially inviting conditions. On the other hand, there is nothing better than the true, conservative style of a writer who by his experience and study knows the facts whereof he speaks and their relation to existing conditions. The farmer has little use for the flashy article and none other

than the substantial facts and advice of the reliable writer should reach his reading table.

¶ ¶ ¶ ¶

Although the attendance was a little below the expectations the Mid-Winter Fair was characterized by excellent **THE WINTER FAIR.** exhibits of apples, poultry, corn and dairy

products. Such an exposition coming at a most opportune time of the year is of great educational value to the farmers and a boost for Ohio. With the exception of dairy products a show of this kind is as much a contest in selection according to standards as in excellence of production.

The prize product, therefore, does not necessarily represent the best crop. The prize ear of corn, for example, may have grown under prize conditions and its excellency is not a sure indication of the crop it would produce if planted. Prize winning samples in any such contest, however, show the possibilities of production under suitable environment and cultural methods and should stimulate the desire for improvement of such products.

A commendable feature of the corn show was the division of the state into sections. Under this arrangement northern growers competed only with northern growers and southern growers with southern growers. This was not only an advantage to the exhibitors but had the educational advantage of sectional comparison.

OUR DUTY.

With malice toward none, with charity for all, with firmness in the right, as God gives us to see the right. Let us have faith that right makes might, and in that faith let us do our duty as we understand it.

—Abraham Lincoln.



A president of one of our county school boards has advocated a summer session of the high school in order to give instruction in agriculture. By this we naturally think that the present methods of teaching this subject have not met with the entire approval of the rural population. It is assumed that not all of the fault is necessarily cast on the system or the shoulders of the teachers although many teachers have little interest in the subject.

When we think that our working basis of agriculture is all back in the mother earth and that there is little activity with the soil during winter months we realize how far our system is from the real subject in hand.

It has been proposed that a number of high schools join in this summer school and work as a unit; e. g. as a township. The instructor would remain in a township for a short time and then pass on to the next unit, a township. In this way the boys lose little time for their kind of school work and the instructor is able to cover a large territory. The classes would meet not only in the fields as groups or individuals but they could occasionally meet together at night for a short time. The visits from one farm to another would not only give the boys

new ideas but the instructor would be able to see just what made or lost a crop under different conditions. Demonstrations along this line would include tests of varieties, fertilizer, cultivation, harvesting, control of moisture and ground water, control of weeds and studies in types of live stock.

While the teacher is wondering just how he can vary his program a little and have pupils work on something of much interest to parents, let him spend some time on the planning of farms and farm buildings. This can be done by drawing. Most children like to draw but most of their work along this line is merely copying or making diagrams of things they never see, as in the case of the circulatory system of the human body.

In taking up this work a discussion should be given to the location of buildings with regard to convenience and healthful surroundings. Then the house may be planned showing the relative size and situation of the various rooms, the position of doors, stairs and windows, and the designing of porches to meet the demands and add to the beauty of the home. In the yard may be indicated the walks and the placing of shrubbery. In the barn would be indicated the granaries, the drive-ways, stables for live stock and places for feeds and tools. Doing this work is not only practical but it inspires the children to develop their imagination and to think for themselves. In the same way the fields may be worked out with fences, lanes and gates and the rotation of crops indicated. A number of bulletins dealing with this kind of information have been issued by the Experiment Station, the Extension Department and the U. S. Department of Agriculture.

SOIL EXPERIMENTS.

The War Cry of today—"Back to the Farm." Every movement must have an organization. No phase of education is receiving the wide attention that our agricultural education is at present. Not only has there been an extensive move toward agricultural knowledge in the colleges and universities of the land, but the same spirit is permeating the secondary and grade schools. In fact many educators contend that in order that the man be thoroughly trained agriculturally, he must begin from the ground up, or in other words he must receive some of the fundamentals of agriculture while in the grade schools, and that these fundamentals must be further increased in the secondary schools. So firm is this idea instilled into the minds of some educators that they have been influential in having laws passed which enforce the teaching of agriculture in all the public schools including both the grade and the high school.

Granting that such education is desirable, the question arises; who is going to teach it and how is it going to be taught? Many difficulties arise relative to these questions. In the first place many of the public school teachers of the country have had no training in agriculture. Again, even though the teacher may have had training, he or she is handicapped for funds necessary to carry on desirable educational work. Therefore, in planning an outline of work for either the grade or the high school teacher, one should make the plans in such a way as to point to a fundamental principle yet simplified sufficiently that the teacher may grasp the idea easily. Again in planning such work one should keep in mind the expense of equipment, and with that view I suggest the following experiments:

1—Percolation of Water in Soils.

Apparatus: Four large bottles if the bottoms can be cut off in some manner or four lamp chimneys with straight sides, a rack to hold them, four vessels to receive the drippings from the soils, clay, sandy, loam and muck soils, and a 100 cc. graduated cylinder.

Procedure: Tie a piece of cloth, preferably muslin over the mouths of the bottles. Put the bottles in the rack, mouth downward. Fill each bottle nearly full of soil using a different soil in each bottle. Settle the soil in each bottle by jarring slightly. Pour water on each soil (a little at a time, until it disappears from the surface) until it begins to drop from the bottom of the bottle. Note the amount of water added and the amount which drops through in a given time, say two periods of fifteen minutes each. During the dripping period, water should be kept on the surface of the soil.

Figure out how long it takes the water to come through each soil and the amount that comes through per hour. Discuss the reasons for the difference in percolation.

2—Capillary Rise of Water.

Apparatus: Four lamp chimneys, with the straight sides (the same as in Exercise 1), shallow pan, four soils, muslin, ruler and funnel.

Procedure: Tie a piece of cloth over the end of the chimney. Fill each chimney with a different soil, jarring slightly to settle the soil. Stand the chimneys in the pan. Fill the pan about one-half inch deep with water, watch the rise of moisture in each of the chimneys and measure at intervals of ten minutes for an hour or more. Let stand until the water reaches top of clay soil.

Discuss the rise of the water in the different soils.

3—Good and Bad Seed Bed Preparation.

Apparatus: Same as Exercise 2.

Procedure: Tie a piece of cloth over the end of the chimney. Fill the chimneys about half full of soil, using either a loam or sandy soil. Now, in one put an inch or two of small clods; in the second, a half inch of fine straw or other organic matter; in a third an inch of fine straw and soil mixture; in the fourth, an inch of unsifted soil. Then put in a piece of cloth and fill up with soil like that in the bottom of the chimney. Put water in the pan and watch the results of the movement of the water through each material.

Discuss the results and what effect plowing has upon this.

4—Effect of Different Kinds of Mulches.

Apparatus: Five empty cans (tomato, or such), loam soil, and a spring or platform balance and shallow pan.

Procedure: Punch five or six holes in the bottoms of the cans with a nail. Fill each can with soil, finely pulverized, but not sifted. Set the cans in the shallow pan, to which keep adding water until it appears at the surface of the soil in the can. Set the cans out of the water and let drain until the surplus water has drained off. Remove an inch of the soil from three of the cans. To one of these add an inch of dry soil and cultivate each day. To the second add straw and to the third add sand. To one of the cans not changed, compact the surface and the fifth one leave it as it is untreated. These should be weighed every day or every other day for a week or more.

Discuss the results of the different mulches upon the amount of evaporation from each can. Figure out in tons how much water would be lost from an acre of such soil.

5—The Three Kinds of Moisture in the Soil.

Apparatus: Four bottles as in Ex. 1, four soils and balance.

Procedure: Tie a cloth over the mouth of the bottle. Fill each bottle with a separate soil, slightly jarring to settle the soil. Add water until it begins to drip through. This is free or gravitational water.

After the water stops dripping remove the soil. Weigh it. Spread out and let dry until there seems to be no more moisture in it. Weigh again. The loss is capillary water. Put the dry soil in a dish and heat in an oven for a few hours. The heat should be slightly above the boiling point of water. Cool and weigh again. This loss is the hygroscopic water. This crude method will show approximate results.

Discuss the difference between the soils. Which kind of water is valuable to the crops and how can it be controlled?

6—Water Capacity of Soils.

Apparatus: Four lamp chimneys or cans with holes in the bottom, four soils and balance.

Procedure: Tie cloth over the ends of the chimneys. Weigh empty. Wet soils as in Ex. 4. When done dripping, weigh again and determine the percentage of water retained by each soil.

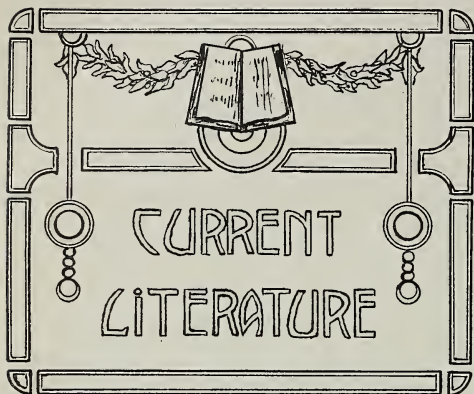
Discuss the results.

7—Drainage and Germination.

Apparatus: Two cans, one with holes in the bottom and the other without, soil to fill the cans, beans or corn for planting.

Procedure: Fill each can with soil and wet until saturated. Plant five to ten seeds in each can, cover, about two inches deep. Label and set aside for a week, noting the progress by examining occasionally.

Jos. P. Hershberger.



“Productive Farming” by K. C. Davis, is a book intended as a text in the schools below the high school rank, and for rural schools. It also contains information that would be found valuable on any farm. It is divided into four parts, the first dealing with plant production; the second with animal production; the third with animal products; while the last part deals with farm management. 374 pages, 224 illustrations. Cloth, \$1.00. J. B. Lippincott Co., Philadelphia, Pa.

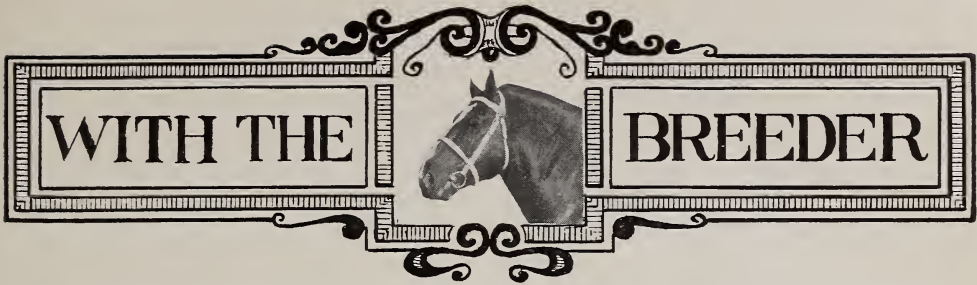
“Silos” by L. M. King of the Iowa State College, is a book dealing with the construction and service of silos. This is the first comprehensive work of this kind ever published. It takes up all types of silos, giving different methods of construction and relative durability. A large portion of the book is devoted to a discussion of the means of preservation of silage. The book will be of great value to the practical farmer. 100 pages, illustrated. Cloth, 50c. Webb Publishing Co., St. Paul, Minn.

“Field Crops” by A. D. Wilson and C. W. Warburton, is a book which will find its greatest use in the secondary agricultural schools. Each of the field crops is taken up in some detail in a

simple, practical and readable manner. Although it is designed as a text book for high schools, it would be equally valuable to farmers. 540 pages, illustrated. Cloth, \$1.50. Webb Publishing Co., St. Paul, Minn.

“Productive Vegetable Growing” by John William Lloyd, Professor of Olericulture at the University of Illinois, is a book primarily of principles rather than the detailed practices of vegetable growing, and is written from the viewpoint of conditions as they exist in the great central prairie region. However, it is sufficiently broad to be of value to the vegetable gardener anywhere. Especial attention is given to the matter of temperature requirements, marketing and storage. The book is designed especially for the use of schools and colleges, but should also be found a great help by the commercial and home vegetable grower. 339 pages, 193 illustrations. Price \$1.50. J. B. Lippincott Co., Philadelphia.

“Fungous Diseases of Plants” by Benjamin M. Duggar, Professor of Plant Physiology in Cornell University. In this book are presented many of the vital facts brought to light by modern research in plant pathology, which should be invaluable to farmers, gardeners, and every one interested in plants. It is of equal usefulness as a reference book or as a text book for college or university instruction. There is embodied a comprehensive discussion of the chief fungous diseases of cultivated and familiar plants. The value of the bacteriological method in plant pathology is emphasized by special chapters giving concise methods for the cultivation of parasitic fungi. 508 pages, illustrated. Cloth, \$2.00. Ginn & Co., Boston.



The recent sale of the Fairview Herd of Holsteins held by the estate of the late E. H. Dollar of Heuvelton, N. Y., demonstrated that high producing Holsteins are in great demand, and that breeders appreciate the value of a creditable sire. The six-year-old Holstein bull Rag Apple Korndyke 8th topped the sale with the sensational price of \$25,000. The purchaser was Oliver Cubana, Jr., of Elm Center, N. Y. The total consignment of 172 head brought an average of \$872.

An International Sheep Show to be held at Salt Lake City, Utah, is proposed by the National Wool Growers' Association. This association in cooperation with the commercial club of Salt Lake City has donated \$10,000 for this purpose.

Promoters of the undertaking propose an exhibit of fat and breeding sheep to be held in connection with their annual convention. This is intended to be an annual event to take place in November just previous to the International. However, this year, owing to a conflict with the San Francisco Sheep Show this new sheep exhibit will occur in September.

The future looks brighter for the pork producers in the United States although the situation is not very promising at present. In the hog market recent receipts have been very abundant at all points. Hence prices have been maintained at a comparatively

low level. Some packers have predicted that even until June they will be able to get plenty of pork at \$6.50 per cwt. This abundant supply of pork on the market should not cause hog raisers to lessen their production for a serious beef and mutton shortage is certain for the year resulting in higher prices for their products. This will no doubt strengthen the hog market and cause a raise in prices.

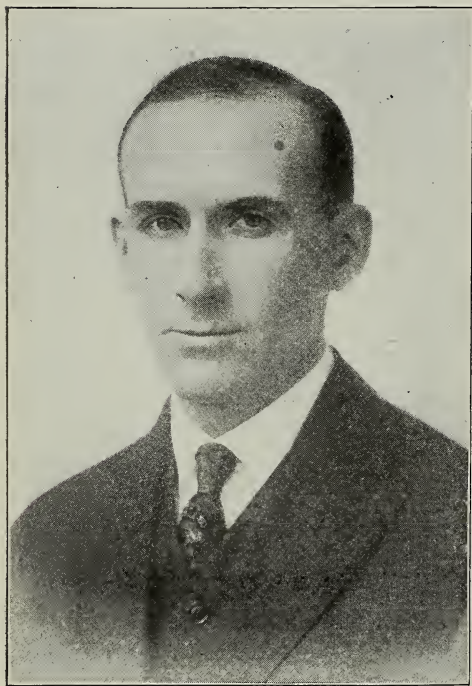
High and prospective exorbitant prices for feeding stuffs have doubtless caused many farmers to rush their hogs onto the market in a half finished condition. Such a practice will rapidly deplete our swine herds. Very soon the prices for this product will warrant the feeding of high priced grain.

The American Shorthorn Breeders' Association recently passed resolutions declaring that all live stock slaughtered by the government, grade or pure bred, should be paid for at actual value for breeding purposes. It has also been urged that farmers should be paid for slaughtered animals as soon as possible so they would not conceal animals having the disease because of fear of non-payment of damages.

The government is releasing the quarantined districts as fast as possible, a special effort being made at present to temporarily raise the quarantine in order that pure bred hogs for breeding purposes can be transported from one state to another.

Alumni What The Bus Grads Are Doing

John F. Cunningham, now managing editor of *The Ohio Farmer* and recently appointed as a member of the Board of Trustees of Ohio State University, was graduated from the agricultural college in 1897. He received the first fellowship in horticulture and forestry



ever granted in this college. And after two years he was given the rank of Assistant in Horticulture and awarded the degree of Master of Science. In 1899 he accepted a position on the editorial staff of *The Ohio Farmer*. Since

that time he has always been connected with this agricultural journal.

Newspaper work, however, is not the only activity in which Mr. Cunningham takes especial interest. He is a member of the Y. M. C. A. of Cleveland and has been instrumental in bringing about some of the leading social reforms of the city through that organization. He has also become identified with such organizations as the Cleveland Grays, a military club, and the Ohio Naval Militia which makes weekly boat drills and cruises in the summer. His activity in these lines led to his election to rear commodore of the Lakewood Yacht Club, the largest yacht club on Lake Erie from the standpoint of numbers.

Interest and merit in public service work caused him to be instrumental in drawing up the basis of the present Ohio civil service law and to his appointment on the executive committee of the Ohio Civil Service Association.

He has served as president, vice-president, secretary and treasurer of Ohio State University Association of Cleveland; on the Board of Visitors of the National Ohio State University Association and has always been interested in all progressive movements of all departments of the university. He has witnessed the construction of all buildings on the campus except the Main, Botanical and old Mechanical Buildings. His appointment to the Board of Trustees of the university was announced December 22, 1914.

D. W. Galehouse, ex-1901, has had charge of the fair exhibit work of the Ohio Experiment Station for the last three years. During the 1914 fair season, exhibits were installed at 28 county fairs and the state fair. Three complete exhibits were maintained. He had charge of the Ohio exhibit at the

National Corn Exposition, Dallas, Texas, in February, 1914.

He has taken an active interest in the Boys' and Girls' club work for several years and was officially connected with the Buckeye Corn Boys' Tour in 1912, 1913 and 1914.

In addition to his regular work at the Experiment Station, Mr. Galehouse has been secretary of the Ohio Corn Improvement Association for the three years and has managed the last three state corn shows held at Springfield, Lima, and Mansfield. He also had charge of the corn show at the Ohio Winter Exposition.

Clayton Long, '13, for the past two years assistant in the Horticultural Department and instructor in poultry for the Extension Department has accepted a position in the Extension Department of New Hampshire Agricultural College, Durham, N. H.

Knott C. Egbert, '90, has removed from Siletz, Oregon, to Sorrento, Idaho.

Rae P. Dowler, '14, has moved from the Palmer Plantation near Shreveport, La., to Groveport, O.

F. P. Stump, '92, was a visitor at the Mid-Winter Exposition. He is interested in raising Shorthorn cattle and Berkshire swine near Convoy, Van Wert Country, Ohio. Concerning activities in the agricultural college from '90-'92 he said: "Dr. Townshend taught every subject from botany to veterinary medicine to the six students in the four year course. The appropriations amounted to about \$200 per year; but only \$10 to \$15 of this was used, the rest returning to the university budget at the end of the year." Mr. Stump was a member of the first staff of The Agricultural Student.

Walter Williams, '14, is practicing general farming on a 400 acre farm near Wilmington, Ohio. He manages

a dairy of 25 cows and expects to feed several carloads of steers each season.

Aaron Head, ex-'15, who has been employed in soil survey work in Portage County during the past year, has been appointed assistant in the soils department at the university.

Albert O. Hayes, ex-'16, is engaged in dairy farming near Springfield, O.

Hershel Bunnell, ex-'15, is managing a canning factory at Lebanon, Ohio. The factory employs about 75 employes during the rush season.

H. F. Miller, two-year course '13, is operating a general farm with potatoes and cabbage as sidelines at Clyde, Ohio.

Harvey Hoewisher, two-year course, is a member of the firm of Hoewisher & Son, Sidney, Ohio. They deal in Percheron and Belgian horses.

Howard Stokes, '14, is operating a large apple orchard at Fremont, Ohio.

William Buente, '14, is a contractor for concrete work in Cincinnati, Ohio. He expects to enter the University of Wisconsin next year to take graduate work.

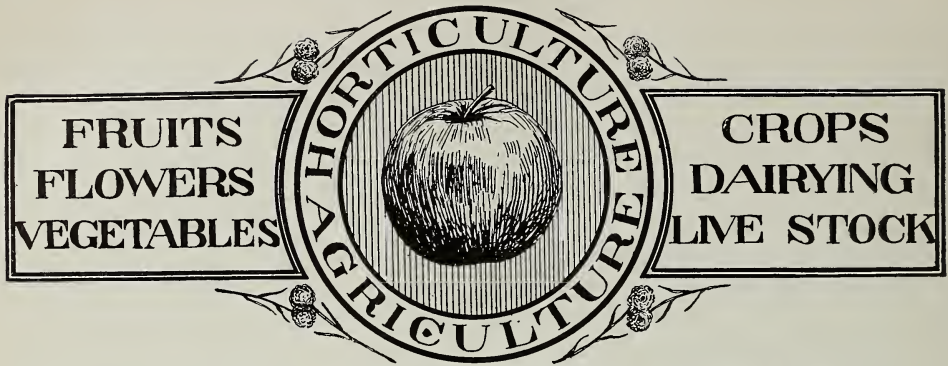
Thomas O'Mara, '14, is employed by the Pennsylvania Railroad Company at Van Wert, Ohio.

C. K. Elliot, ex-'16, is farming at Mt. Victory, Ohio.

William McGarey, '14, is farming at Junction City, Ohio.

Bishop Hough, '14, is working for the State Highway Department.

Wilson Harbage, '17, died on Sunday, January 10, 1915, at West Jefferson, Ohio. During the Christmas vacation he became ill, suffering from a severe cold which developed into tonsillitis. Later pneumonia set in which caused his death. Funeral services were held at West Jefferson, Jan. 12.



Plans were completed at a meeting held during the Mid-Winter Exposition for a state-wide boys' stock judging contest to be held next year. According to Clark Wheeler, supervisor of agricultural extension in Ohio, three boys from each county in which the county judging contests are held will be given a free trip to Columbus where the state contest will be held.

Those counties which expect to hold the local contests must arrange with the extension department before April 1st, 1915, to have the free instruction in stock judging given. An instructor will be sent to the county during the summer to coach all prospective candidates for the local contests, the same instructor having charge of the final contest at the county fair.

During the past year unusual interest was taken in the county contests. Twenty-five counties arranged for instruction and many were refused because they failed to apply in time for instruction. Prizes to the value of \$1200 were offered, one-half of which was cash, the rest in pure-bred live stock.

Free trips for three boys from each county besides the prizes offered at the local contests has caused a number of counties to apply for the free instruction already and indications show that nearly every county will arrange for the contests at the county fairs.

Extension schools, although hampered by the foot and mouth quarantine, have been very successful and the attendance at all the schools has been larger than last year. In some places the stock judging lectures have been given without demonstration. The entire force of extension workers were called to Columbus for Farmers' Week, February 1-5.

"No state fair and no county fairs will be possible in Ohio next year unless the foot and mouth disease is under complete control" was the statement of Hon. A. P. Sandles, President of the Agricultural Commission, in an address before the commission's annual meeting in the Chamber of Commerce on January 13.

"Ohio must be brought to a realization of the seriousness of her situation," declared Mr. Sandles. "The impression has gone out that Ohio does not know how to behave under a quarantine. Unless there is a decided improvement soon stockmen are predicting that there will be no state or county fairs next year."

Resolutions were adopted approving all that had been done to stamp out the disease. Also, for the first time, the farmers at the meeting approved the tuberculin test for cattle, declared that it ought to be continued, that a state investigation should be made and

that the state should make a survey of the tuberculin treatment.

As a prize of the best 500 word article on "Landscape and Vegetable Gardening for Town Conditions" the Columbus Real Estate Board has offered a cash prize the amount of which is not given. In addition the winning article will be printed in both The Columbus Dispatch and The Columbus Citizen.

Instead of the yearly trip through the green house sections of northern Ohio, the students of horticulture will visit the apple producing sections of



northern Ohio, West Virginia and Kentucky. According to Prof. Wendell Paddock, the trips after this year will probably be required of all horticultural students. Such a plan has been carried out in Pennsylvania State College and at Michigan Agricultural College with great success. Some of the trips required by these states go as far east as Boston and cost as high as \$125 per student.

Ohio State University's horticultural team composed of Frank Copper, Jr., Willard Moiser of Columbus, and C. L. Burkholder of Clyde, Ohio, who competed in the Apple Judging Contest at Morgantown, W. Va., January 28-29,

won fourth place with a score of 85.9%. The first prize, a \$100 silver cup, was won by the New Jersey team, seven states having competed in the contest. C. L. Burkholder won a cup as third prize in the individual contest. The contest will be held in Baltimore, Md., next year and in Columbus the following year.

The crops grown on the University Farm in 1914 were as follows:

	Acres	Yield
Corn	99.46	bu. 5183
Corn	16.71	tons ensilage 164
Rye	10.00	bu. 255
Wheat	31.02	bu. 746
Oats	21.87	bu. 641
Straw	62.89	tons 52.7
Timothy Hay	13.00	tons 18.5
Alfalfa	39.37	tons 165.0
Beets	2.00	tons 11.97

Maximum yield of corn—70.7 bu on $10\frac{3}{4}$ acres.

Maximum yield of wheat—26.6 bu. on 16 acres.

Maximum yield of alfalfa—2 tons per acre (first cutting.)

Although these yields are not exceptional, they show up very well in the face of the drouth of last summer. It is interesting to note the amount of alfalfa grown in comparison with the timothy. The yield of alfalfa was over 4 tons to the acre, while on similar soil the yield of timothy was less than one and one-half tons.

In order to secure subject matter for the work in farm management, the Department of Rural Economics is co-operating with a number of the farmers in Ohio to determine the best methods of farm accounting and the distribution of farm labor. Books are furnished and a special system used in carrying out the plan.

THE OHIO FARMERS' LIVING.

According to a recent survey, made by the United States Department of Agriculture, the Ohio farm stands above the average farm of the United States in its contribution to the family's living in the way of products grown and directly consumed. It was found that in Ohio where general farming is practiced 65.6% of the food consumed was produced on the farm. This is a little higher than the general average of 63% for all similar areas studied. The farm produced 90% of



the meat and 83% of the vegetables. The average value of the groceries was one-fourth the value of the other food consumed.

From these facts it seems probable that the farmers of the Ohio area could have profitably reduced their expenses and at the same time raised the standard of living of their families by giving more attention to the vegetable garden. The Ohio area ranked lowest of all in the percentage of vegetables in the household diet and highest in the percentage of animal products consumed.

The farmers in the Ohio area practicing general farming occupy a central position between the farmers of communities studied in Georgia and

North Carolina where food is abundant and those in New York, Pennsylvania and Vermont where little is raised for home consumption. The direct contribution of the farm to the family's livelihood was found to be greater in Ohio than in any other area except Georgia and Iowa.

A recent bulletin of the U. S. Department of Agriculture gives a full account of the Miami series of soils occurring in western Ohio. These soils which will produce an average of 40 bushels of corn, 18 bushels of wheat, 40 bushels of oats, and one and one-half tons of hay to the acre, occupy millions of acres within the temperate region. All the heavier types in this series are excellent farming soils, producing yields of grain and grass above the average yields of these states.

The soils in western Ohio and east-central Indiana, even after a century of occupation, still produce average yields of the chief crops fully 25% above the general averages for the United States.

In general these soils are fertile, fairly well drained, and very completely occupied for agricultural purposes. Additional tile drainage, the use of lime to sweeten the surface soil and the utilization of stable and green manures can be recommended for increasing the yields which are now secured.

The United States Department of Agriculture during the fiscal year ending June 30, 1914, issued 1,152 new publications, according to the annual report of the editor. The total number of copies of these new publications was 26,691,692, and of old publications, 11,494,700, making a grand total of 38,186,392 copies published during the year.



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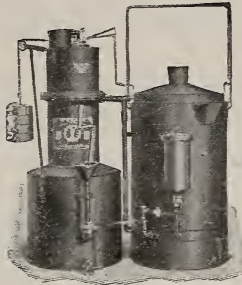
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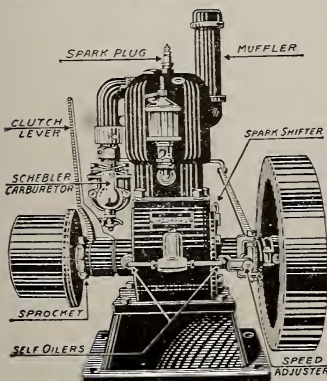
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*23 Farmers get over 200 bu. per Acre
10 of Them get over 300 bu. per Acre
All Grown on A:A:C: Fertilizers Exclusively*

375 Bu. per Acre Wins 1st Prize

FIRST	\$100.	E. L. Powers, Vienna, Mich. . . .	yield 375. bu.
SECOND	\$100.	E. W. Lincoln, Montcalm, Mich. . .	" 354.23 bu.
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The average yield of Indiana, Wisconsin and Michigan

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The average yield of United States is 109.6 bu.

This means that with good culture, good sense and good fertilizers

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as well as that of the United States. Send for complete story of the contest and study the crop growing methods of these men. Sent free to any address.

TRY-A-BAG of fertilizer this year. Our brands are soluble and active, hasten maturity and improve quality. Ask for prices and terms. **Agents wanted.**

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Ordinary.		10 Pay.		Age	15 Pay.		20 Pay.	
Prem.	Div.	Prem.	Div.		Prem.	Div.	Prem.	Div.
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17.90	3.15	41.27	3.18	22	30.98	3.15	25.95	3.16
18.29	3.15	41.94	3.19	23	31.48	3.18	26.38	3.18
18.70	3.17	42.64	3.21	24	32.00	3.19	26.83	3.18
19.12	3.19	43.35	3.22	25	32.55	3.20	27.29	3.20
19.58	3.21	44.11	3.25	26	33.12	3.23	27.77	3.21
20.06	3.23	44.88	3.26	27	33.71	3.25	28.27	3.24
20.55	3.24	45.68	3.29	28	34.32	3.27	28.80	3.27
21.08	3.28	46.52	3.32	29	34.96	3.30	29.34	3.28
21.63	3.31	47.39	3.35	30	35.62	3.32	29.90	3.32
22.22	3.34	48.29	3.38	31	36.31	3.36	30.50	3.36
22.83	3.37	49.23	3.41	32	37.02	3.40	31.11	3.39
23.48	3.42	50.20	3.46	33	37.76	3.44	31.75	3.43
24.16	3.46	51.20	3.51	34	38.54	3.49	32.42	3.48
24.89	3.51	52.25	3.55	35	39.35	3.54	33.13	3.52
25.66	3.57	53.32	3.62	36	40.18	3.60	33.87	3.59
26.46	3.63	54.46	3.67	37	41.06	3.65	34.63	3.65
27.33	3.71	55.63	3.75	38	41.98	3.73	35.44	3.71
28.24	3.78	56.84	3.82	39	42.92	3.80	36.28	3.79
29.20	3.87	58.11	3.91	40	43.93	3.88	37.18	3.88

ENDOWMENTS

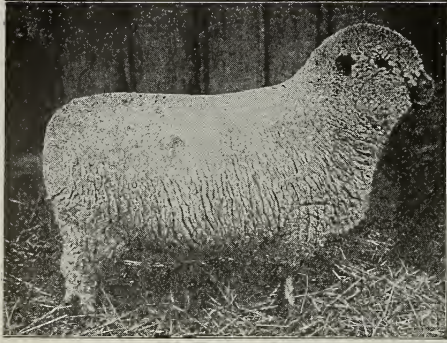
10 Year.		15 Year.		Age	20 Year.		25 Year.	
Prem	Div.	Prem.	Div.		Prem.	Div.	Prem.	Div.
\$97.34	\$3.25	\$62.29	\$3.20	21	\$45.21	\$3.17	\$35.32	\$3.16
97.40	3.26	62.37	3.21	22	45.30	3.18	35.42	3.17
97.47	3.28	62.45	3.23	23	45.38	3.20	35.52	3.18
97.54	3.29	62.52	3.23	24	45.47	3.21	35.62	3.19
97.60	3.31	62.60	3.25	25	45.56	3.22	35.74	3.20
97.69	3.32	62.70	3.27	26	45.67	3.24	35.86	3.23
97.77	3.34	62.79	3.29	27	45.78	3.27	36.00	3.25
97.87	3.37	62.90	3.31	28	45.90	3.28	36.15	3.27
97.97	3.39	63.01	3.34	29	46.04	3.31	36.30	3.30
98.07	3.42	63.13	3.36	30	46.18	3.34	36.48	3.33
98.17	3.45	63.26	3.40	31	46.34	3.37	36.67	3.36
98.30	3.48	63.40	3.44	32	46.51	3.41	36.88	3.40
98.42	3.53	63.55	3.48	33	46.69	3.46	37.10	3.44
98.56	3.56	63.72	3.52	34	46.90	3.50	37.36	3.48
98.71	3.62	63.90	3.57	35	47.12	3.54	37.64	3.53
98.88	3.69	64.09	3.62	36	47.36	3.59	37.96	3.59
99.05	3.74	64.32	3.68	37	47.64	3.67	38.30	3.65
99.25	3.81	64.55	3.76	38	47.94	3.73	38.68	3.71
99.45	3.87	64.82	3.82	39	48.27	3.81	39.11	3.79
99.69	3.96	65.10	3.92	40	48.65	3.90	39.57	3.88

The above schedule gives the Premium Rates of Life and Endowment Policies, also the Dividends paid at the end of the first year, which can be applied toward the payment of the second Premium. Information and sample policies will be gladly furnished on request by

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Hampshires

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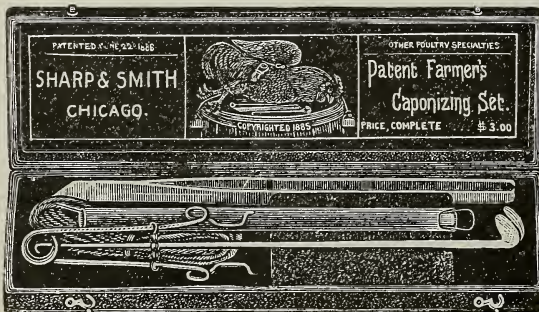
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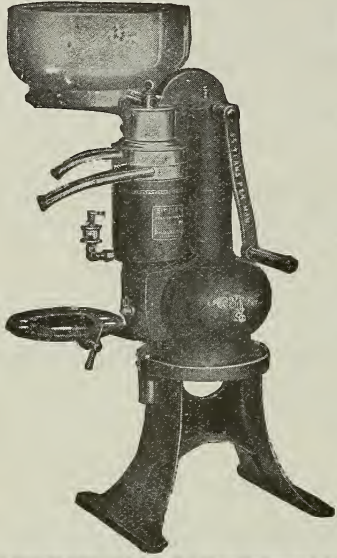
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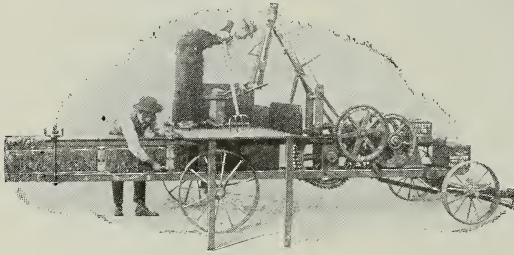
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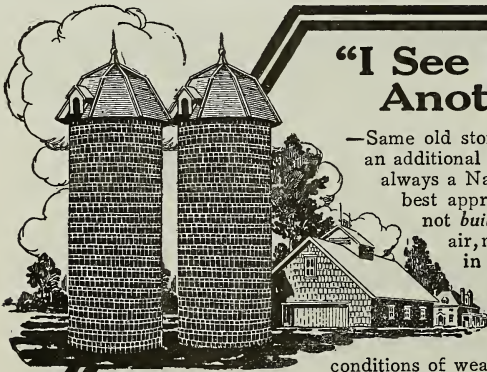


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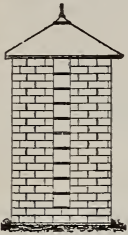
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It's built of hollow vitrified clay tile which will endure forever, and whose glazed surfaces absorb no moisture and totally exclude air and frost. It's reinforced by bands of steel laid in the mortar, and can resist all wind and silage pressures; thus a taller silo with a smaller diameter can be erected for there is no danger of a blowdown. Plan for your new silo now. Send today for a list of Natco owners in Ohio and ask for Catalog 46

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REPRESENTATIVES WANTED. Write for terms and free booklet.

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Will Spray as many Trees as Three Barrels of
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This is just the time you should be giving your poultry this splendid tonic. It will put them in fine condition, make your hens lay, ensure fertile hatching eggs and strong, vigorous chicks. Very economical—a penny's worth is enough for 30 fowl per day. Sold only by reliable dealers—never sold by peddlers. 1½ lbs. 25c; 5 lbs. 60c; 25-lb. pail \$2.50. Except in Canada and the Far West. Guaranteed.

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Kills lice on poultry and all farm stock. Dust the hens and chicks with it, sprinkle it on the roosts, in the cracks, or, if kept in the dust bath, the hens will distribute it. Also destroys bugs on cucumber, squash and melon vines, cabbage worms, etc., slugs on rose bushes, etc. Comes in handy sifting-top cans. 1 lb. 25c; 3 lbs. 60c. Except in Canada and the Far West. I guarantee it.

I urge you to see to it right now that your work horses are put in prime condition for spring and summer work, so that when the sun shines they will be rid of their old coat, full of stamina and ready for business. And don't overlook the spring pig crop—the mortgage lifters. Start them off free from disease—free from worms. Be sure, also, that your milk cows are thoroughly conditioned for the long, heavy milking season, and that those with calf are vigorous and fit. Remember, your stock have been idle and on dry feed for the last few months—they're pretty liable to be out of fix—rough in the hair, constipated, troubled with dropsical swellings and stocky legs, but the most common ailment of all, especially among hogs, is worms—worms.

Dr. Hess Stock Tonic

A Splendid Conditioner

A Sure Worm Expeller

It will tone up your stock, enrich their blood and help to put them in shape for spring. Being both a doctor of medicine and a veterinary scientist, I formulated Dr. Hess Stock Tonic especially as a conditioner. It contains tonics for toning up the general system, laxatives for regulating the bowels, diuretics to remove dropsical swellings and vermifuges that expel the worms. By all means feed Dr. Hess Stock Tonic to your hogs now—it will positively rid them of worms. Feed it to your cows also.

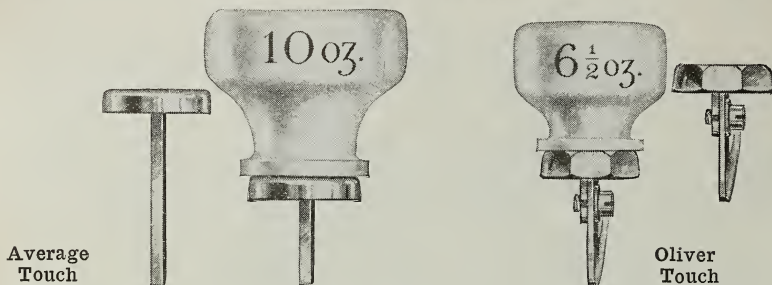
So sure am I that Dr. Hess Stock Tonic will put your stock in a thriving condition, make the ailing ones healthy and expel the worms, that I have told my dealer in your town to supply you with enough for your stock, and if it doesn't do as I claim—if it doesn't pay you and pay you well—return the empty packages and get your money back.

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If not at your dealer's, write direct to

DR. HESS & CLARK

Ashland, Ohio



Typewriter Touch by Actual Weight

Now mark the story this test tells. To operate the average typewriter requires a 10-ounce pressure on the keys. Some $7\frac{1}{2}$, some $13\frac{1}{2}$. Mark that the Oliver writes at $6\frac{1}{2}$ ounces—scaled down to 50% lighter. And it wins its leadership in other points, too.

Here again a service to the world—the new model Oliver—the Silent Seven. A benefaction to all mankind. Labor of thousands lightened. With touch so sensitive that experts marvel—the weight of your finger, tapped on the key.

You Can Prove It

Place some small, flat object on a key of the average typewriter. Add enough objects to make the key write. Now perform this experiment with the Oliver No. 7, set at equal tension. Then weigh the two sets of objects. Your nearest druggist can do so if you have no handy means.

Others have made this demonstration. The result is as interesting as it is conclusive.

Speed Test

Many are misled by the operator's performance. Oliver capacity exceeds all human pace. And before it leaves our factory we run each typewriter by mechanical tester—each key at a speed no human hand can reach.

Yet, without once piling the letters.

Easy for Novice

Now all who can touch a key can write at once. Start the first day your Silent Seven arrives. No schooling necessary—no skill. Just the normal practice that comes as you operate.

The Silent Seven

This brilliant triumph has all our epoch-making inventions—visible writing, visible reading, fewest keys, and Printype if desired.

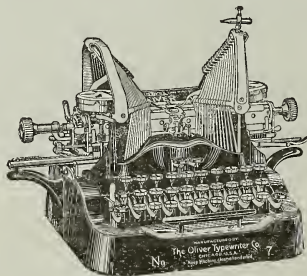
To these have been added the cushioned keyboard, anchor-keys and automatic improvements. With the new paper holder no care is needed—your sheet cannot crumple.

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